S6161-S6-FSE-010

0910-LP-573-3300

MIXING MACHINE, FOOD, ELECTRIC

60 QT. CAPACITY
MODEL 1
STYLE 1
SRM60+

FED. SPEC. 00-M-38K/GL/
CONTRACT NO: DLA441-93-C-1120
NSN: 7320-01-382-5218
DATE: 04 FEB 1994

MFG.: UNIVEX CORPORATION
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APPROVAL AND PROCUREMENT RECORD PAGE

APPROVAL DATA FOR: Defense General Supply Center Technical Manual for Food Mixing Machine, 60 Qt. Capacity, Model No. SRM60+.

PUBLICATION/CONTROL NUMBER: NSN7320-01-382-5218

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Contract Number	NSN	Number of Units	Voltage/ Other ID	CID/APL
DLA441-93-C-1120	7320-01-382-5218	12	440V, 60HZ, 3PH	

REMARKS: This manual supersedes Manual (s) all revisions.

CERTIFICATION: DATE: 04 FEB 1994

It is hereby certified that the DGSC Technical Manual for Mixing Machine, Food, Electric, 60 Qt. Capacity, Model No. SRM60+, to be provided under Contract DLA441-93-C-1120, has been approved by the approval data shown above.

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IDENTIFYING TECHNICAL PUBLICATION SHEET
FOR
COMMERCIAL MANUAL/SUPPLEMENTAL DATA

1. Purpose: This Identifying Technical Publication Sheet is used for the purpose of identifying and authorizing the following Commercial Manual for Defense Logistics Agency.

Manufacturer: Univex Corporation
3 Old Rockingham Road
Salem, N.H. 03079

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Requisition No.: YPG93036004214
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National Stock No.: 7320-01-382-5218
Title: Manual - Operation, Maintenance and Repair
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2. Additional Copies: Additional copies are available from DGSC.

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4. Authority Notice, Distribution Statement, Disclosure Notice - Defense General Supply Approval letter dated 04 FEB 1994

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES

LIST OF EFFECTIVE PAGES

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. change to illustrations are indicated by miniature pointing hands. Changes to diagrams are indicated by shaded areas.

Dates of issue for original and changed pages are:

Original.....

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS CONSISTING OF THE FOLLOWING:

Page NO.	* Change No.	Page No.	* Change No.
A-F	0		
1 through 50	0		

* Zero in this column indicates an original page.

SAFETY SUMMARY

The following are general safety precautions that are not related to any specific procedures and therefore do not appear elsewhere in this publication. These recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Operation personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the high voltage supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position, due to charged retained in capacitors. To avoid casualties, always remove power and discharge and ground a circuit before touching it.

DO NOT SERVICE OR ADJUST ALONE

Under no circumstances should any person reach into or enter the enclosure for the purpose of servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

RESUSCITATION

Personnel working with or near high voltage should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

The following warnings and cautions appear in the text in this volume and are repeated here for emphasis.

WARNING
Dual power supply which requires both sources of voltage must be de-energized prior to working on equipment.

CAUTION
If the motor drive runs at maximum speed when the speed control is set to the low end, immediately remove the power from the unit and have an electrician check the wiring.

WARNING
Disconnect electrical power for safety

WARNING/CAUTION
Do not put hands, spoons or utensils in bowl while the mixer is operating.

WARNING
Never install or remove an attachment while the mixer is running.
Always turn it off for safety.

WARNING
Never work on the transmission with the mixer running.
It is recommended that the electrical service
be disconnected to prevent accidental start up.

CHANGE RECORD

Change No.	Date	Title/Brief Description	Signature of Validating Officer.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Our new SRM (SAFETY RING MIXERS) feature advanced "user-friendly" safety centering around a removable bowl guard. In addition to coming on and off easily. these safety rings are dishwasher safe.

- By design, this welded one-piece stainless steel ring assembly allows clear visibility of the product throughout the mixing cycle.
- Each safety ring guard is equipped with twin locating pins which enable the guard to key lock securely in position during the mix cycle.
- Dual micro interlock switching acts as double protection against the mixer operating without the safety ring guard locked in place.
- Additional micro switching stops mixer operation when the bowl is lowered from its up or mixing position.
- For additional safety and operational ease, each SRM mixer is equipped with an instant/off push button switch and oversized red mushroom-style emergency off cap.
- These momentary contact "Stop & Start" push buttons and contactor provide low voltage protection and prevent accidental start up in the event of a power failure.

INTRODUCTION

For SAFETY sake, we would appreciate everyone involved to take the time to give this Manual a quick read. Included in this manual are the following:

Operator Safety

Installation Tips

Care and Preventive Maintenance

Operational Information

Detail Parts List and Service Data

OPERATOR SAFETY

READ AND MAKE SURE THAT YOU UNDERSTAND INSTRUCTIONS AND SAFETY WARNINGS BEFORE ATTEMPTING TO OPERATE THE MIXER OR ATTACHMENTS.

NEVER PUT FINGERS OR HANDS IN THE BOWL WHILE THE MIXER IS OPERATING OR SERIOUS INJURY COULD RESULT.

NEVER ATTEMPT TO CLEAR A JAMMED ATTACHMENT OR STALLED MIXER WITHOUT SHUTTING THE POWER OFF. DISCONNECT THE ELECTRICAL PLUG FROM ELECTRICAL OUTLET.

INSPECTION

All Univex **mixers** are carefully tested and inspected prior to packaging to assure both the quality of the machine as well as the inclusion of all requested options, attachments, and voltage.

However, upon unpacking, all items should be carefully checked to verify that they are correct.

Any damage, imperfection, or shortages should be reported immediately to your Dealer or directly to UNIVEX CUSTOMER SERVICE, Toll Free: l-800-258-6358.

INSTALLATION

In selecting the most ideal location for **your** New SAFETY RING MIXER, it is helpful to consider the following:

- Where is the best location for the operator, both for saving steps and easy viewing7
- Is this a good location for product flow as in:

  Easy to get ingredients to the mixer?

  Destination of the mix after mixing?
- Is there existing electrical service at this location?
- Does this location provide easy access for cleaning and service?
- Check to be sure that your mixer with attachments does not extend out into heavy traffic areas.
- If stands and/or portable equipment are used along side of your mixer, can they be **moved** easily to and from your mixer?

WARRANTY

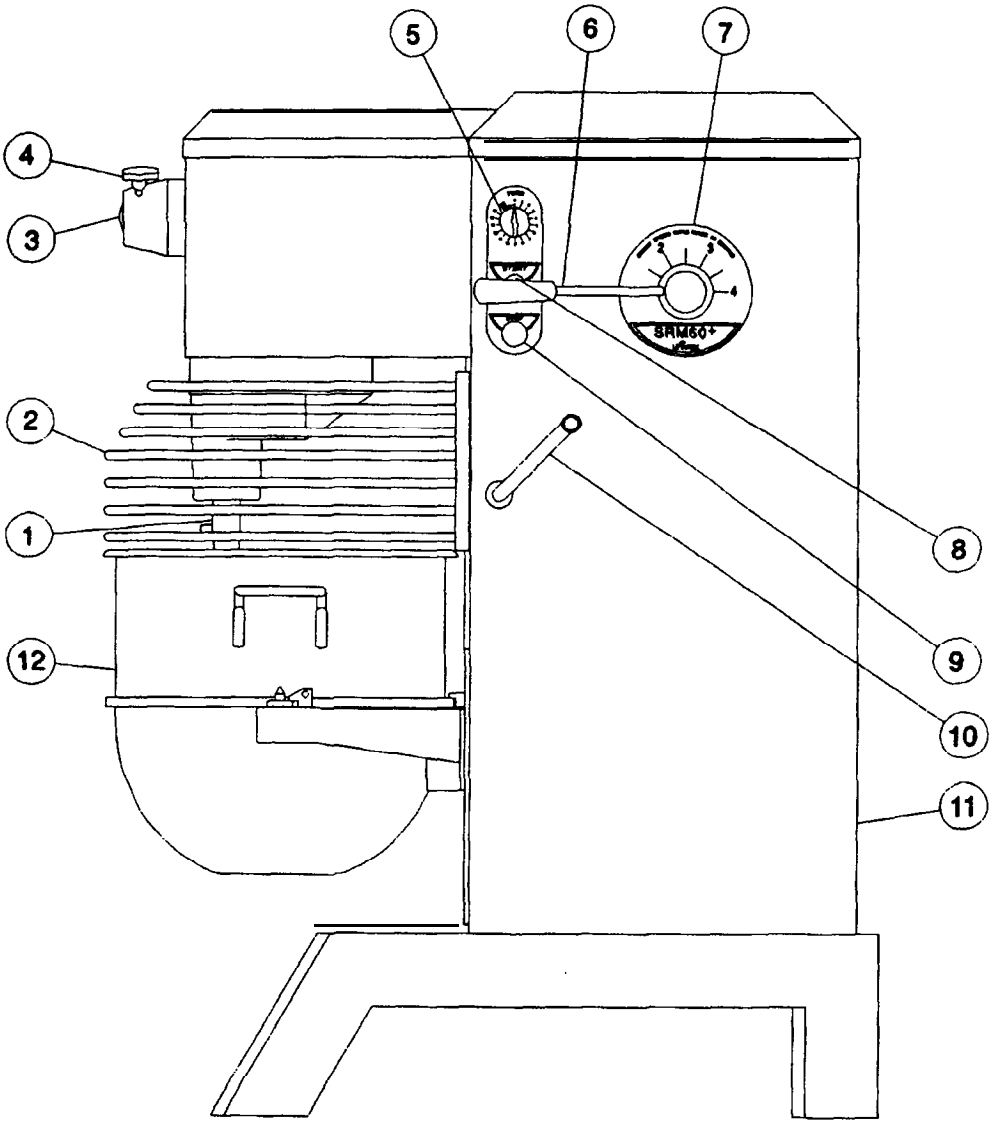
The **SRM60+** SAFETY RING MIXER is warranted by UNIVEX CORP. against defects in material and workmanship for a period of 18 months from date of delivery.
Damages incurred in transit or from installation error, accident, alteration or misuse are not covered. Transit damages should be reported to the carrier immediately.

IMPORTANT

CAUTION: Electrical wiring instructions are found on Pg. 37. Before making electrical connections, CHECK the specifications on the nameplate to make sure that they agree with those on your electric service.

OVERALL VIEW OF FOOD MIXER

Figure



1. BEATER SHAFT
2. SAFETY RING ASSEMBLY
3. NO. 12 HUB
4. THUMB SCREW
5. TIMER
6. SPEED CONTROL HANDLE
7. SPEED CONTROL LABEL
8. START SWITCH
9. STOP SWITCH
10. BOWL LIFT HANDLE
11. REAR ACCESS PANEL
12. BOWL

OPERATING INSTRUCTIONS

Read and make sure that you understand instructions and safety warnings before attempting to operate the miser or attachments.

Our Univex Mixer is designed to meet the Cook's and Baker's demand for an efficient dependable mixer. Our mixer will give unfailing performance over a period of years, when operated and maintained according to instructions contained herein. The machine drives various attachments through a vertical shaft to beat, mix, or whip liquid, viscous or dry materials. The vertical shaft is driven by a motor with power transmitted by a variable speed cogged belt and a CVT variable speed unit through a gear train and a planetary gear set. The machine is equipped with a power-take-off, which operates other attachments. The vertical shaft speed can be varied from approximately 80 to 320 revolutions per minute (RPM), the power-take-off from 90 to 370 RPM.

START/STOP CONTROLS, TIMER

The miser is started by first setting the timer (Figure 1 [5]) to the desired time then pushing the start switch (Figure 1 [8]).

The timer may be set for up to 15 minutes duration or may be set on hold position for continuous operation. When setting a time less than 5 minutes, turn knob beyond 5 minutes and then return to the desired time.

Note: The mixer can only be started when the SAFETY RING is in place and the bowl is in the raised position.

SPEED CONTROL

Unlike other mixers. you can change speeds while the mixer is running. With UNIVEX, you DO NOT have to stop to change speeds!

Change speeds only while mixer is running. To change speeds, move lever (Fig. 1 [6]) to desired speed. Speed indicator label (Fig. 1 [7]) shows 4 speeds.

Speed 1 or slow speed is for heavy mixtures like bread or roll dough. this speed should also be used for Meat and Food Chopper Attachment. In most mixing operations, start on number 1 and change to higher speeds as work progresses. Medium speeds for medium work; high speeds for whipping cream, beating eggs, and thin batters. Refer to the Table of Mixer Capacities with attachment and speed recommendations on page 9. To prevent damage to your mixer, you should follow these limits and recommendations.

WARNING: DO NOT PUT HANDS, SPOONS OR UTENSILS IN BOWL WHILE THE MIXER IS OPERATING.

BOWL LIFT

The bowl is raised or lowered by a lift handle (Fig. 1 [10]) on right side of mixer. It is necessary to lower the bowl to change beaters. This also makes the bowl accessible for filling. Rotate the handle counter-clockwise to lower the bowl. and clockwise to raise the bowl.

BEATER, AGITATORS AND BOWLS

When attaching an agitator, the bowl (Figure 1 **[12])** must be in the down position. Slip the agitator on beater shaft (Figure 1 [I]) and turn counter-clockwise to engage drive pin. Agitators of various styles are available. each suited to a particular job.

The batter beater (Fig. 3 [A]) used in low and medium speeds is commonly used for thin batter, cakes, and mashing potatoes. The wire whip (Fig'3 [B]) used in medium and high speeds is best for whipping cream and beating eggs. Four other style beaters are available: the Dough Hook (Fig. 3 **[C])** used on low speed only for heavy bread dough; and the Pastry Knife (Fig. 3 [D]) used at medium speeds only for cutting shortening into flour for pastry. The Four Wing Beater (Fig. 3 **[E])** is used for whipping potatoes and icings in low and medium speeds as well as for whipping of mayonnaise and other light work in medium or high speeds. The Sweet Dough Beater (Fig. 3 **[F])** is used to mix sweet doughs, doughnuts and confections in low speed only.

Each beater, whip and hook has been designed to do a particular type of work. Use them only for the work for which they were designed. Failure to follow this advice could result in damage to either the attachments or the machine.

IMPORTANT

IF YOU NOTICE ANY SLIPPAGE WITH ANY MIX, YOU MAY BE OVERLOADING YOUR MIXER. CUT BACK LOAD OR REDUCE SPEED UNTIL ACTION ROTATES SMOOTHLY. CHECK CAPACITY CHART ON PAGE 9. IF MIXER JAMS AND MOTOR STALLS, IMMEDIATELY TURN MIXER OFF WITH STOP SWITCH. NEVER PUT HANDS INTO BOWL TO CLEAR A JAM.

BOWL DOLLY

A dolly (Fig. 3 **[H])** for the 60 quart bowl provides ease in handling the larger heavier batches, A bowl dolly adaptor (fig. 3 [I]) is required when using 30 quart bowls on the 60 quart bowl dolly. Remove heavy batches from the mixer by first placing the dolly under the saddle, then open the bowl clamps and lower the bowl to the bowl dolly placed below. The dolly/bowl can then be rolled to the next location.

BOWL SPLASH COVER AND BOWL EXTENSIONS

A 60 quart bowl splash/extension ring (Fig. 3 [J]) reduces the splash and helps contain ingredients in the bowl during the mixing of certain recipes. They should never be used to overload a mixer beyond its recommended capacity. Refer to the chart of maximum batch capacities of page 9 whenever you are unsure of them.

ATTACHMENTS

Some of the more popular attachments are the Vegetable Slicer and Shredder, and the Meat and Food Chopper. The attachment hub (Fig. 1 **[3])** is for the **#12** tapered hub attachments. Before installing attachments, stop motor, then insert with a slight twist until firmly in place, tighten the thumb screw (Fig. 1 **[4])**. The attachment drive has 4 speeds controlled by the speed control handle.

WARNING: THE CHOPPER ATTACHMENTS MUST NEVER RUN FASTER THAN SPEED 1 WHEN CUTTING MEAT, BUT WHEN CUTTING VEGETABLES, IT MAY RUN AT HIGHER SPEEDS. NEVER INSTALL OR REMOVE AN ATTACHMENT WHILE THE MIXER IS RUNNING. ALWAYS TURN MACHINE OFF AND DISCONNECT POWER FOR SAFETY.

OPERATORS CARE OF MIXER

CLEANING

1. **Warning:** DISCONNECT ELECTRIC POWER SUPPLY BEFORE CLEANING. Wash body of mixer, the saddle and beater shaft with warm water and mild soap. Keep water from safety ring keyhole slots. DO NOT RINSE WITH HOSE. Do not use abrasive pads. Dry mixer thoroughly using a soft cloth.

2. Wash bowl and beater immediately after using. If egg mixtures or flour batters were used, rinse with cold water before washing with hot. Safety ring may be washed in the same manner or can also be put in your dishwasher.

3. Dry bowls, beaters and safety ring thoroughly and hang up to prevent damage.

4. Lubricate beater shaft after washing. Recommend Petro-Gel or equivalent.

5. DO NOT COVER UNIT WITH PLASTIC BAG, AS THIS TRAPS HUMIDITY IN YOUR MIXER.

OPERATOR PREVENTIVE MAINTENANCE

Overloading is the #1 cause of mixer failure. Read and understand the Capacity Chart.

Lack of Lubrication is the #2 cause of mixer failure. If you hear a change in the sound of the mixer transmission, it may need grease.

Changing speed with the mixer off will cause belts to become loose and mixer will not turn (see Troubleshooting Guide). It is good to get in the habit of returning back to 1st speed before shutting machine off.

UNIVEX FOOD MIXING - MIXING CAPACITIES

	MODEL		SRM60+
	Bowl Capacity		60
	Attachment Hub Size		#12 Hub
	Motor		2 HP
	Kitchen Capacities	**Agitators**	
	Single Batches		
	Mashed Potatoes	A	40 Lbs.
	Whipping Cream	B & E	12 Qts.
	Mayonnaise (Qts. of Oil)	A, B, E	18 Qts.
	Egg Whites	B	2 Qts.
	Meringue (Quantity of Water)	B	1-1/2 Qts.
	Waffle or Hot Cake Batter	A	24 Qts.
	Bakery Capacities		
	Single Batches		
***	Raised Doughnut Dough, 65% AR	C	50 Lbs.
**	Heavy Bread Dough, 55% AR	C	78 Lbs.
**	Bread & Roll Dough	C	80 Lbs.
	(Light to Medium), 60% AR		
*	Pizza Dough, Thin, 40% AR	C	50 Lbs.
*	Pizza Dough, Med, 50% AR	C	75 Lbs.
**	Pizza Dough, Thick, 60% AR	C	80 Lbs.
	Pie Dough	D	50 Lbs.
	Sugar Cookies	A	100 Doz.
	Pound Cake	A	55 Lbs.
	Box or Slab Cake	A & E	50 Lbs.
	Cup Cakes	A & E	70 Doz.
	Layer Cakes	A & E	50 Lbs.
	Short Sponge Cakes	B & E	45 Lbs.
	Sponge Cake Batter	B & E	36 Lbs.
	Angel Food (No. of 8-10 Oz.Cakes) Marshmallow Icing	B & E	45
	Fondant Icing	E	5 Lbs.
	Shortening & Sugar Creamed	A	36 Lbs.
	Egg & Sugar for Sponge Cake	A	48 Lbs.
		A & E	24 Lbs.

Code of Agitators: (See Fig. 3)

A - Batter Beater
B - Wire Whip
C - Dough Hook
D - Pastry Knife
E - Four Wing Beater

Code of Speed: * 1st Speed Only **1st or 2nd Speed *** 2nd or 3rd Speed

These commonly used speeds are for the capacities listed. Larger capacities require a reduction in speeds. The dough capacity whether for breads, rolls, pizza, bagels or raised donuts depends on the moisture content of the dough. Absorption ratio % is the weight of the water divided by the weight of the flour. As the % AR is lower, the dough is stiffer and more difficult to mix.

1 gal. water = 8.3 lbs.
If high gluten flour is used, reduce total capacity by 10%.
AR below 40% will reduce total capacity.

MECHANICS MAINTENANCE

A mechanic should perform the following inspection and maintenance as required depending on severity of use, but at least yearly.

1. REMOVAL OF TOP COVER

a. The top cover (Fig. 11 [15]) must be removed in order to perform the maintenance operations. It is secured by a spring clip at its front end and a screw at its rearward end. First, DISCONNECT THE ELECTRICAL POWER FOR SAFETY. Then, remove the screw in the rear (Fig. 11 [18]), lift rear of cover, push forward about 3 inches and lift cover off.

b. Re-install in reverse procedure using care to insure that the cover sits squarely and uniformly on the mixer housing.

2. CVT BELT DRIVE

a. Start mixer and shift speed control (Fig. 1 [6]) to the slowest speed (Low, 1). Stop mixer.
WARNING: FOR SAFETY, DISCONNECT ELECTRICAL POWER. Place tag or sign on electrical supply warning that MIXER IS BEING WORKED ON; DO NOT TURN ON.

b. Remove rear access panel (Fig. 11 [24]) and top cover (Fig. 11 [15]) as described above.

c. Inspect drive belt (Fig. 12 [2]) for proper adjustment. Outer surface of belt should be approximately flush to 1/16" below the outer edges of the input pulley flanges (Fig. 12 [5]) when mixer has been shut off in first speed (see Pg. 11). If drive belt is excessively frayed or has a heavily glazed surface, replace it. However, it is generally the best judgment to leave a drive belt in a machine if it is performing well, even it if shows moderate wear. Inspect gripping surfaces of drive belt for excessively glazed surfaces or contamination by grease or oil.

To replace belt, run mixer in 1st speed. Disconnect electrical supply. Shift machine to 4th speed. Unwrap belt from top pulley. Slide belt between top pulley nose and cam (Fig. 9 [8]). Remove belt from lower pulley.

WARNING: Lower pulley flanges are spring loaded. Keep fingers away while removing belt.

The bowl must be lowered in order for the belt to clear the nose of the lower pulley when removing belt. To install new belt wrap belt around lower pulley. Pull belt into the spring loaded flanges. A pry bar will help separate the flanges. Continue replacement in reverse order from belt removal. Adjustment of the belt drive will most likely be required.

d. Readjustment of the drive belt, where a slight stretching or normal seating has caused outer surface of the belt to exceed the acceptable limit of flush to 1/16" below the input pulley flanges (see Pg. 11) is as follows:

Loosen kep nuts (Fig. 9 [12]) securing the bracket (Fig. 9 [15]) and holder (Fig. 9 [1]) to the housing. If the belt was riding outside the pulley flanges, tap the speed

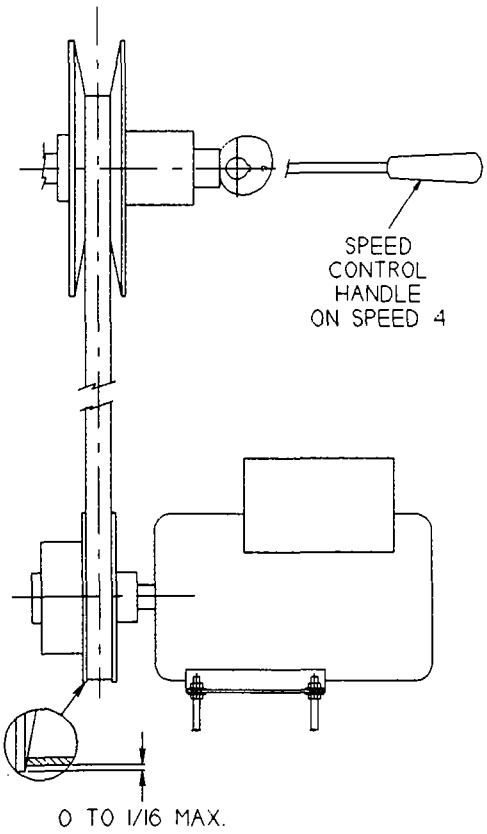
control assembly lightly towards the rear of the mixer. If the belt was riding more than 1/16" below the pulley flanges, tap the speed control assembly towards the front of the machine (shifting to 2nd second speed will help).

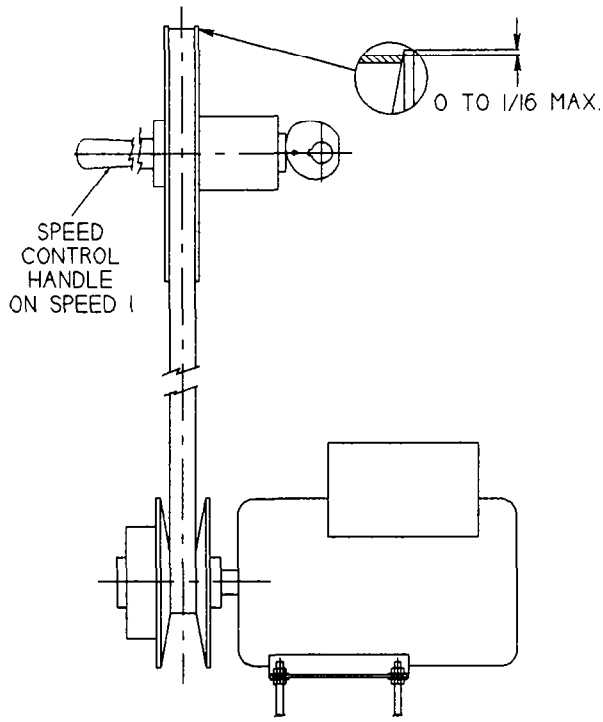
Note: The assembly must remain perpendicular to the mixer housing walls. Failure to do so will result in the binding of the shaft (Fig. 9 [10]) in the bearing (Fig. 9 [21]).
Retighten the kep nuts and run mixer in 1st speed and check belt position. Repeat procedure if necessary.

e. Once the upper pulley (Fig. 12 [5]) has been adjusted, the lower pulley must be checked. Start mixer and shift to 4th speed. Turn mixer off and check position of belt. The belt should be flush to 1/16" below outer edges of the pulley flanges. If adjustment is needed, loosen kep nuts (Fig. 12 [14]) and raise or lower the motor using the kep nuts on the under side of motor. Retighten top kep nuts and run mixer in 4th speed to check new belt position.

Note: The motor must remain level with the mixer base (Fig. 11 [1]). If not, poor shifting and belt life will result.

WARNING: FOR SAFETY, DISCONNECT ELECTRICAL POWER.





3. **MOTOR**

Check motor (Fig. 12 [16]) for overheating and excessive noise. If defective, send to a local electrical repair shop.

4. **BOWL LIFT ADJUSTMENT**

WARNING: FOR SAFETY, DISCONNECT ELECTRICAL POWER.

a. Check adjustment by placing a 60 quart bowl in the lowered bowl support, and place a 60 quart batter beater (Fig. 3 [A]) on the beater shaft (Fig. 5 [2]).

b. Raise bowl support to the upper position.

c. Check clearance between bottom of the bowl and the adjacent underside of the batter beater. Clearance should be 3/16" ± 1/16".

d. If adjustment is required, loose jam nut (Fig. 8 [25]) and turn threaded bowl stop rod (Fig. 8 [24]) until the desired clearance is obtained, then tighten the jam nut.

5. **DRIVE BELT REPLACEMENT** (See CVT Belt Drive)

6. **LUBRICATION**

WARNING: FOR SAFETY, DISCONNECT ELECTRICAL POWER TO THE MIXER.

a. The lubrication instructions are listed in Figure 2.

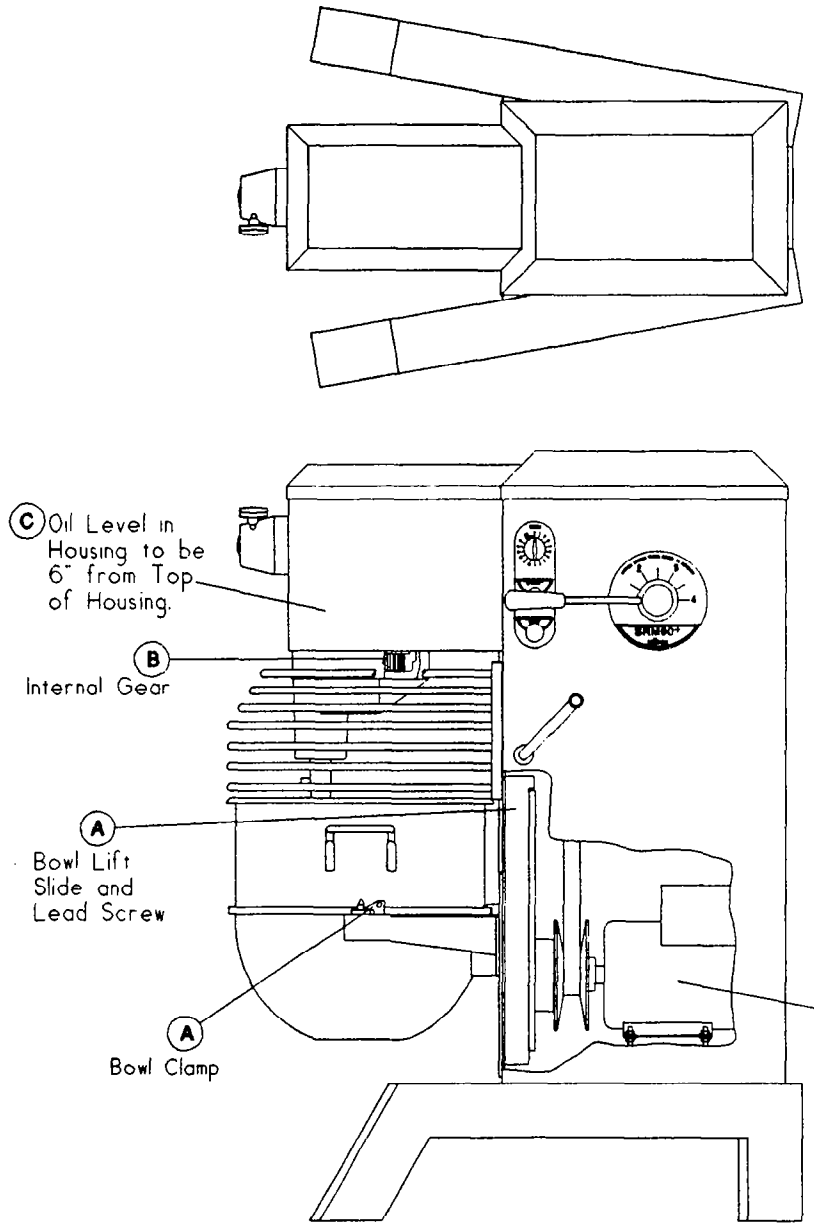
b. Remove access panel (Fig. 11 [24]), top cover (Fig. 11 [15]).

c. In order to service the gearbox, it will be necessary to further remove the gearbox cover (Fig. 4 [2]). A thin blade putty knife will prove helpful in separating the silicone sealant between this cover and the gearbox. Do not bend cover. Thoroughly remove all dried sealant before applying new sealant when reinstalling the cover. Silicone rubber sealant such as Dow Corning Silastic 732RTV or Permatex Form-A-Gasket are recommended.

WARNING: NEVER WORK ON THE GEARBOX WITH THE MIXER RUNNING.

d. Use care to avoid getting lubricant of any kind on the drive belt and pulleys as this would seriously deteriorate the belt grip and mixer performance.

LUBRICATION INSTRUCTIONS
FIGURE 2



(A) GREASE EVERY 6 MO. GENERAL PURPOSE MACHINE GREASE

(B) REPACK GREASE YEARLY ON BEVEL GEARS AND PLANETARY GEARS. IF REQUIRED USE KEYSTONE MOLY-29 OR EQUIVALENT.

(C) 140 WT GEAR OIL

208-240V. 60HZ. 1 & 3PH A.C. Motors Lubricate every ten years with high quality ball bearing grease applied into the two Alemite fittings. with one. or two full strokes.

SRM60+ TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	REMEDY
1. Mixer will not operate.	1.1 Timer not turned on. 1.2 Burned switch contacts. 1.3 Electrical service down. 1.4 Motor capacitor defective (1PH only). 1.5 Burned out motor. 1.6 Magnetic starter tripped due to overload. 1.7 SAFETY RING not mounted. 1.8 Bowl not raised.	1.1 Turn timer on. 1.2 Clean or replace. 1.3 Check electrical service. Replace fuse or reset circuit breaker as necessary. 1.4 Replace. 1.5 Remove, test, repair or replace. 1.6 Wait several minutes and push start button. 1.7 Install SAFETY RING. 1.8 Raise bowl completely.
2. Mixer runs but beater will not turn.	2.1 Drive belt off of pulley. 2.2 Key or pin sheared on input shaft, input gear, bevel pinion, vertical shaft or beater shaft. 2.3 Shifting with mixer not running.	2.1 Reinstall drive belt on motor pulley and adjust mount center distance. 2.2 Locate by step inspection and replace defective parts. 2.3 With mixer running, slowly move shift lever fully forward then backward in order to re-engage belt.
3. Stalling of agitator during mixing.	3.1 Mixer bowl is overloaded. 3.2 Speed is set too high for the mix. 3.3 Loose belt. 3.4 Contamination of belt with grease.	3.1 Readjust contents of bowl per Capacity Chart. 3.2 Shift speed lower till action rotates smoothly. 3.3 Readjust pulley center distance to tighten belt. 3.4 Clean pulleys and replace belt.
4. Speeds not changing properly.	4. Loose belt. 4.2 Vari-speed pulley inoperative.	4.1 Tighten or replace. 4.2 Remove, clean & lubricate or replace.
5. Mixer runs but, keeps cutting out and stops.	5.1 Bowl overloaded. 5.2 Speed set too high for bowl contents. 5.3 Service voltage is too low or fluctuating.	5.1 Reduce content of bowl. 5.2 Reduce speed. 5.3 Check electrical voltage.

SRM60+ TROUBLESHOOTING GUIDE (cont'd)

TROUBLE	POSSIBLE CAUSE	REMEDY
6. Attachments contact bottom of bowl.	6.1 Dented bowl. 6.2 Bowl height set too high.	6.1 Remove dent or replace. 6.2 Reset bowl height.
7. Attachments contact side of bowl.	7.1 Dented bowl. 7.2 Insufficient clearance between bottom of bowl and beater.	7.1 Remove dent or replace. 7.2 Readjust bowl height.
8. Excessive noise.	8.1 Gears need to be repacked with grease, or oil level is low. 8.2 Badly worn or frayed drive belt. 8.3 Attachments hitting bowl. 8.4 Overloaded mixing bowl.	8.1 Locate source by inspection and repack with grease or top off oil level. 8.2 Replace belt. 8.3 Inspect for cause. Ref. 6 & 7 8.4 Readjust contents of bowl per Table of Mixing Capacities.

REPAIR INSTRUCTIONS
(Including Disassembly, Replacement and Reassembly)

A. GEARBOX (Fig. 4)

GEARBOX REMOVAL:

1. Run mixer and shift to first speed then turn off.

2. WARNING: FOR SAFETY, DISCONNECT ELECTRICAL SUPPLY.

3. Remove set screw (Fig. 4 [16]) and drain oil.

4. Remove rear access panel (Fig. 11 [24]), top cover (Fig. 11 [15]), per instruction in Mechanic's Maintenance.

5. Remove drive belt per instructions (2) in Mechanic's Maintenance.

6. Remove speed control assembly (Fig. 9)
   See Speed Control Disassembly.

7. Loosen two allen set screws (Fig. 12 [4]) that secure input pulley (Fig. 12 [5]) and remove pulley completely from input shaft (Fig. 7 [12]).

8. Remove gearbox cover (Fig. 4 [2]). Remove remaining oil from gearbox.

9. WARNING - FOR SAFETY! The gearbox is very heavy, weighing approximately 225 pounds and must, therefore, be supported safely before starting step number (10). It is recommended that a portable hydraulic crane of sufficient capacity be used. A chain may be attached to the P.T.O. shaft (Fig. 6 [11]) at mid-length. Use care not to rub or scrape the gears.

10. Remove four cap screws (Fig. 4 [11]) securing gearbox housing to mixer housing. Remove gear box assembly and place on work bench.

11. Rotate gear train by hand and inspect for worn or chipped gears, bent shaft, worn bearings and excessive backlash. Backlash measured at gear teeth exceeding 1/32" is considered excessive. After trouble has been isolated, proceed to disassemble.

GEARBOX DISASSEMBLY:

1. Beater Head (Fig. 5)
   a. Remove cap screw (Fig. 5 [21]) and remove beater head assy. If beater head does not drop easily, use the two jacking screws (Fig. 5 [19]) to assist in removal. Do not pry against outer rim of beater head housing (may cause breakage).

   b. Remove top retaining ring [9], gear [11], bottom retaining ring [9], key [7], seal [10], retaining ring [9], retaining ring [8], and press shaft [2] (at gear end) from housing [1].

   c. Press bearings [4 & 6] along with spacer [5] from housing [1].

2. **Power Take Off** (Fig. 6)

   a. Remove three cap screws (Fig. 6 [5]) and washers [6] holding P.T.O. housing [3] to gearbox housing (Fig. 4 [1]).

   b. Remove retaining ring [8] from helical gear end of PTO shaft [11]. Remove gear [14] and key [15].

   c. Using two cap screws as jacking screws (Fig. 6 [5]) in the tapped holes of gearbox housing (Fig. 4 [1]), dislodge and remove the P.T.O. assembly from the gearbox housing.

   d. Remove roll pin [12] and slide P.T.O. bevel gear [13] away from P.T.O. housing [3].

   e. Remove internal retaining ring [9], P.T.O. adaptor [2] and press shaft, bearing, and gear assembly from P.T.O. housing [3].

   f. Remove four retaining rings [8] from P.T.O. shaft [11], and press ball bearings [10] and P.T.O. bevel gear [13] off P.T.O. shaft [11].

   g. Remove P.T.O. oil seal [7] from P.T.O. housing [3] and discard.

3. **Input** (Fig. 7)

   a. Remove four cap screws (Fig. 7 [11] from flange of input housing [9].

   b. Thread two of the cap screws [11] into the two threaded jacking holes in the flange [9]. Turn these two screws in evenly until the input housing is pushed free of the gear box housing.

   c. Remove retaining ring [1] at gear end of the shaft, and press off bearing [2]. Remove retaining rings [1] and press off gear [3]. Remove key [13].

   d. Remove retaining ring [6] and proceed to remove input shaft [12] with bearing [7], out of input housing [9] by pressing from the gear end of the shaft.

   e. Remove rubber seal [4] from housing. Seal must be replaced.

   f. Remove remaining retaining ring [6] from housing.

4. **Vertical Shaft** (Fig. 5)

   a. Remove beater head as covered in Gearbox Disassembly (1) a-c.

   b. Remove P.T.O. assembly as covered in Gearbox Disassembly (2) a-g.

   c. Remove key (Fig. 5 [18]) and retaining ring [9] from vertical shaft [13].

   d. Drive vertical shaft downward into the gearbox. A brass drift will be necessary to drive shaft completely free from the gear box. Lift bevel gear [12] and key [14] from gear box.

e. Insert drift through top of bearing [15] in gearbox and drive seal [16] out bottom of bore.

f. Reach up into bore from bottom opening with snap ring pliers and remove retaining ring [8] from bore.

g. Carefully drive upper bearing [15] out bottom of bore.

h. Press bearing [17] from shaft [13].

GEARBOX ASSEMBLY

1. Clean all components (except bearings) with safety approved cleaning solvent. Inspect components for defects and replace those found to be defective.

   NOTE: If planetary pinion gear (Fig. 5 [11]) requires replacement, it is likely that the planetary gear (Fig. 4 [20]) requires replacement also.

2. If shafts have become slightly scored during the disassembly process, it is necessary to polish the shafts with fine machinist's crocus cloth. An especially smooth finish is necessary in the working seal area of the shafts. Use care to avoid excessive removal of shaft surface or proper fit of components will be lost.

3. Always fit new rubber seals when rebuilding the gearbox. Use special attention in examining the end of the shafts over which the seals will be pushed. The slightest burring or scoring will abrade or cut the delicate seal lips. A light polish of the shaft ends with crocus cloth is recommended.

4. Reassembly should be carried out in reverse of the disassembly procedure stated above. Successful reassembly is very dependent on the cleanliness of all surfaces particularly the bores of housings, gears, and bearings, as well as the outer surface of shafts. It is good to recheck each component for cleanliness as it is picked up for reassembly.

5. Transmission should be progressively checked for smooth operation while on the workbench by hand turning each assembly as it is installed.

6. Lubrication of the gear box should be done following its installation on the mixer. The helical and bevel housing compartments are filled to a level 6" (10 qts.) from the top edge of the gear box with SAE 140 gear oil.

B. BOWL LIFT & SLIDE (Fig. 8)

BOWL LIFT & SLIDE DISASSEMBLY & REMOVAL

CAUTION: FOR SAFETY, DISCONNECT ELECTRICAL SUPPLY.

1. Remove top cover and rear access panel as stated in Section 1 (a), and Section 2 (b), of Mechanics Maintenance Section.

2. Remove drive belt from motor pulley as stated in Section 2 (c).

3. Remove drive assembly (Fig. 12) from mixer housing as follows:

   a. Remove the top 4 kep nuts (Fig. 12 [14]) that secure motor assembly to mixer base.

   b. Remove motor electrical leads (Fig. 12 [13]) from magnetic starter (Fig. 11 [29]). Remove motor ground lead from stud.

   c. Lift motor assembly from mixer housing.

   CAUTION: Drive assembly can weight in excess of 100 lbs. depending on type of motor. Use mechanical lift assistance.

4. Remove bowl from bowl support.

5. Remove two screws (Fig. 10 [10]).

6. Remove 4 screws (Fig. 8 [30]).

   CAUTION: Someone should be holding bowl support (Fig. 10 [1]) while the screws are being removed, so that it does not fall and get damaged. Remove slide cover (Fig. 10 [8]).

7. Loosen set screws (Fig. 8 [41]) and Fig. 8 [8]).

8. Withdraw handle assy. (Fig. 8 [36]) from the outside of mixer housing. Collect gear [9], key [37], washers [4 & 42] and collar [40].

9. Remove 8 nuts (Fig. 8 [29]) and pull slide/frame assembly from studs and remove from mixer housing.

   CAUTION: Assembly is heavy.

10. Remove 2 hex head cap screws (Fig. 8 [15]). This allows for removal of yoke (Fig. 8 [7]).

11. Drive roll pin (Fig. 8 [11]) from miter gear (Fig. 8 [12]). Remove miter gear and thrust washer (Fig. 8 [4]) from lead screw (Fig. 8 [10]).

12. Press lead screw (Fig. 8 [10]) through hole in frame [1].

13. Loosen set screws (2). Remove collar [3] and thrust washer (Fig. 8 [4]) by pulling them from lead screw.

14. Unscrew lead screw from floating nut (Fig. 8 [26]) and remove.

15. Remove 4 screws (Fig. 8 [15]) and remove gibbs (Fig. 8 [27]). The slide may now be removed from the frame.

    NOTE: Save any shim strips that may have been used between the frame and the gibbs. It is recommended that the location be marked at this time with a pencil to facilitate reinstallation.

BOWL LIFT & SLIDE, REASSEMBLY & INSTALLATION (Fig. 8)

1. Grease sliding surfaces of slide & frame. See Lubrication page 12.

2. Keeping shims in place (if any), position slide in frame as shown in Figure 8.

3. Secure slide (Fig. 8 [32]) in frame [1] by bolting gibbs [27] to frame with four hex head cap screws [15]. Check to insure that slide moves freely in frame. If not, remove gibbs and shim where needed.

4. Screw lead screw [10] into floating nut [26] and push slide to bottom of frame so that the lead screw does not protrude through hole in frame.

5. Place the collar [3] and then thrust washer [4] over top of lead screw [10]. Push slide and lead screw up so that the lead screw protrudes through hole in frame.

6. Place thrust washer [4] and then miter gear [12] on top of lead screw [10]. Drive roll pin [11] through miter gear [12] and into lead screw [10].

7. Push slide & lead screw down as far as possible. Slide collar [3] and thrust washer [4] up against frame and tighten set screws [2] in collar against corresponding flats on lead screw [10].

8. Check DU bearings in yoke for burrs (Fig. 8 [6]). Install yoke [7] to frame [1] (do not tighten bolts).

9. Lift assembly into mixer housing. Place assembly on 8 weld studs. Tighten assembly to mixer housing using washers and kep nuts.

10. Insert bowl lift lever assembly (Fig. 8 [33-36,38,39]) through hole in mixer housing. Slide collar [40] and thrust washer [42] over end of lever. Insert lever through yoke while holding the thrust washer [4] and miter gear [9] in position. Continue to slide lever through until miter gear seats against shoulder on the lever shaft. Align keyways of miter gear and lever, insert key [37]. Tighten set screw [8]. Squeezing miter gear [9] and collar [40], tighten set screw [41].

11. With yoke bolts [15] lightly tightened, tap yoke back and forth until the miter gears mesh smoothly. Tighten bolts [15]. Adjust hub [38] so that it is positioned 1/32" from mixer housing. Tighten set screw [39].

12. Lubricate the miter gears and lead screw with general purpose machine grease.

13. Raise and lower bowl lift by turning the bowl lift lever [36]. The mechanism should turn freely.

14. Raise bowl all the way. Check clearance between bottom of bowl and batter beater attachment. The clearance should be 3/16 ± 1/16". If the clearance is not sufficient, adjust bowl stop (Fig. 8 [24]). Loosen jam nut [25], raise or lower bowl stop as needed and tighten jam nut.

15. Make sure bowl lift safety switch (Fig. 8 [18]) is actuated by the retainer plate [23] when the bowl is raised completely. If the switch is not actuated or the lever on the switch is being bent, adjust the bracket [17] by loosening screws [22] and raising or lowering until the switch actuates.

Note: The bowl should continue to raise 1/8" after switch actuates.

SPEED CONTROL (Fig. 9)

1. Run mixer and shift to first speed then turn mixer off.

2. Warning: For safety disconnect electrical supply.

3. Remove rear access panel (Fig. 11 [24]) and top cover (Fig. 11 [15]) per instructions 1 in mechanics maintenance.

4. Remove drive belt per instructions 2 in mechanics maintenance.

5. Warning: Handle (Fig. 9 [25]) has spring loaded rotation. Hold handle to prevent injury.

   While holding handle (Fig. 9 [25]) remove set screws [20] and rotate handle counter clockwise two full turns. This disengages the spring [11].
   Note: The ball [3] and spring [4] may fall out of block [6].

6. Loosen set screws (Fig. 9 [5]), drive roll pin [22] from hub [23] and pull hub from shaft [10]. Unscrew hub [23] and handle [25] from lever [24].

7. Slide retaining rings [9], cam [8] and spring [11] towards locating block [6]. Remove key [19] from shaft, loosen nuts [12] securing detent housing [1].

8. Drive shaft [10] inward until it contacts the left side housing wall. Pull detent housing [1] and shaft assembly [10] towards rear of machine and remove assembly from mounted bearing [18].

9. Slide spring [11] retaining ring [9], cam [8] and belleville washer [2] from shaft [10]. Drive roll pin [7] from block [6]. Slide block [6] from shaft [10].

10. Remove nuts [12], washers [13 & 14] and bracket [15] from housing. Remove bolts [16 & 17] securing bearing [18] to bracket [15].

Reassemble in reverse order of above

Adjust assembly as described in Mechanics Maintenance 2 d, & e.

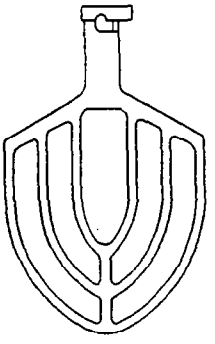
If speed handle creeps during operation tighten the two set screws (Fig. 9 [5]) which push against the belleville washer [2] until creeping stops.

HOUSING (Fig 11)

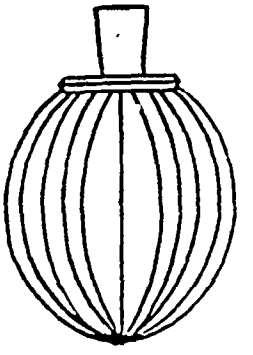
For the remaining parts which have not been discussed pertain to electrical components, and the housing, Figures 10, 13A, 13B, and 13C should provide adequate guidance for the disassembling and reassembling of these parts.

BEATERS, AGITATORS, AND BOWLS
FIGURE 3

A. Batter Beater
1061083
* 1061096 (30 for 60)

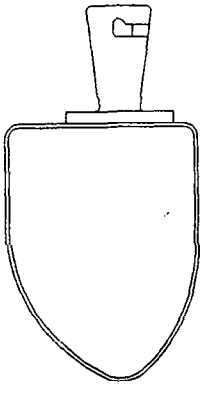


B. Wire Whip
1061095
* 1061182 (30 for 60)

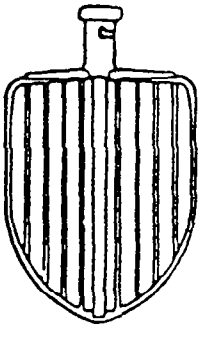


C. Dough Hook
1061089
* 1061090 (30 for 60)

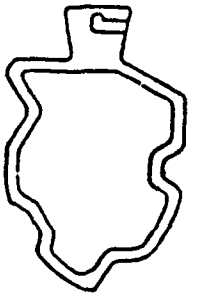
D. Pastry Knife
* 1061087
* 1061088 (30 for 60)



E. Four Wing Beater
* 1061197
* 1061301 (30 for 60)



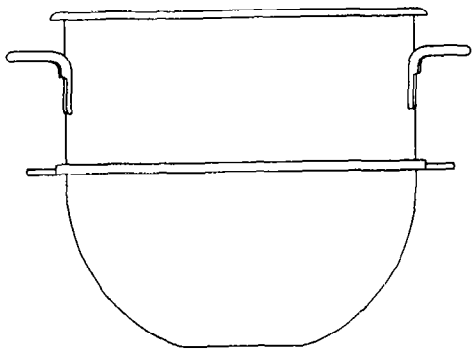
F. Sweet Dough Beater
* 1061229
* 1061313 (30 for 60)



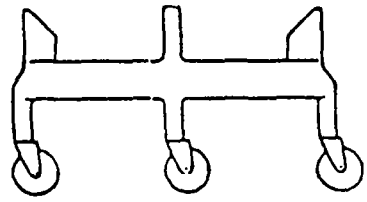
*** OPTIONAL**

BEATERS, AGITATORS, AND BOWLS
FIGURE 3 (Cont.)

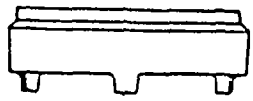
G. Bowl
- * 1061192
- * 1061105 (30 for 60)



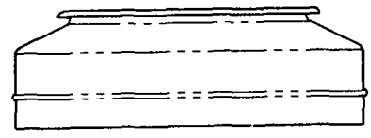
H. Bowl Dolly
- * 1061971
- * 1030971 (30 for 60)



I. 30 for 60 Bowl Dolly Adapter
- * 1030972



J. Splash/Extension Ring
- * 1061298
- * 1061299 (30 for 60)

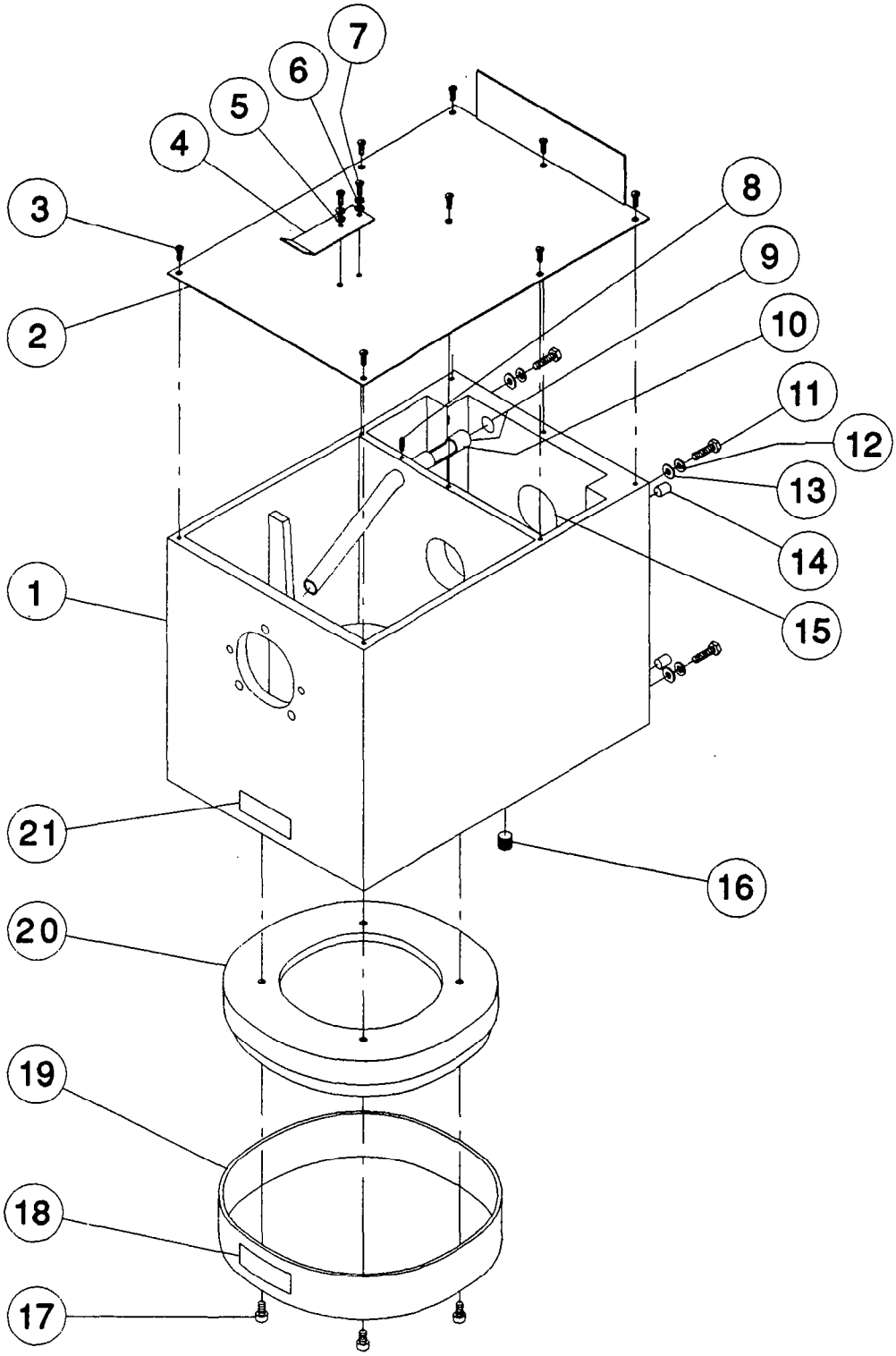


*** Optional**

GEAR BOX
FIGURE 4

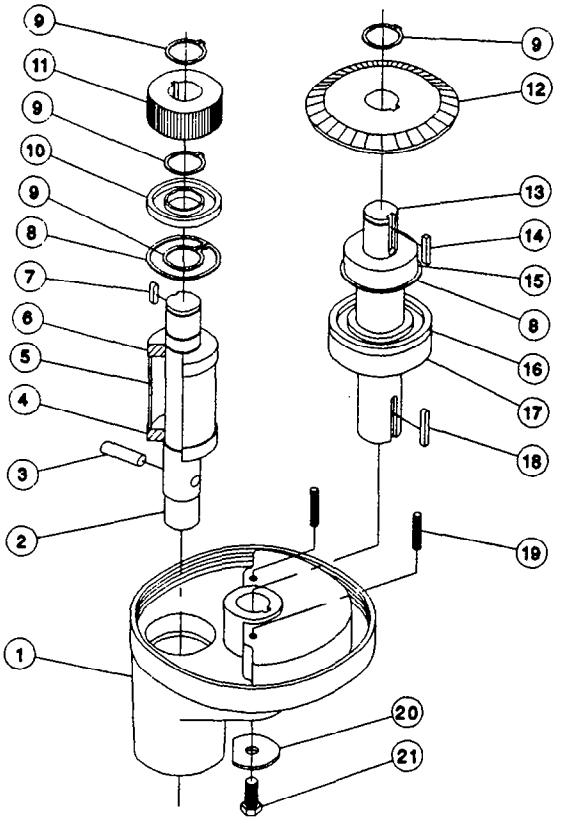
ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1	1064415	HOUSING, TRANSMISSION	1
2	1064417	COVER, TRANSMISSION	1
3	1200008	SCREW, PHILLIPS PAN HEAD 8-32 X 3/8	8
4	1024041	SPRING CLIP	1
5	1200076	FLAT WASHER #10	2
6	4400065	LOCK WASHER #10	2
7	1200012	SCREW, PHILLIPS PAN HEAD 10-32 X 1/2	2
8	1200378	SCREW, CUP POINT SET 8-32 X 1/4	1
9	1064507	PLUG, OILING TUB	2
10	1064418	TUBING, TRANSMISSION	1
11	1200057	SCREW, HEX HEAD CAP 1/2-20 X 1	4
12	1200085	LOCK WASHER 1/2	4
13	1200084	FLAT WASHER 1/2	4
14	1200403	PIN, DOWEL 3/8 DIA. X 1/2	2
15	1061990	PLUG, OIL	1
16	1200326	SCREW, CUP POINT SET 1/2-20 X 1/2	1
17	1200365	SCREW, SOCKET HEAD CAP 1/4-20 X 1/2	4
18	4400269	LABEL, ROTATION	1
19	1061002	SPLASH RING	1
20	1061111	GEAR, INTERNAL	1
21	1024010	LABEL, UNIVEX	1

GEAR BOX
FIGURE 4



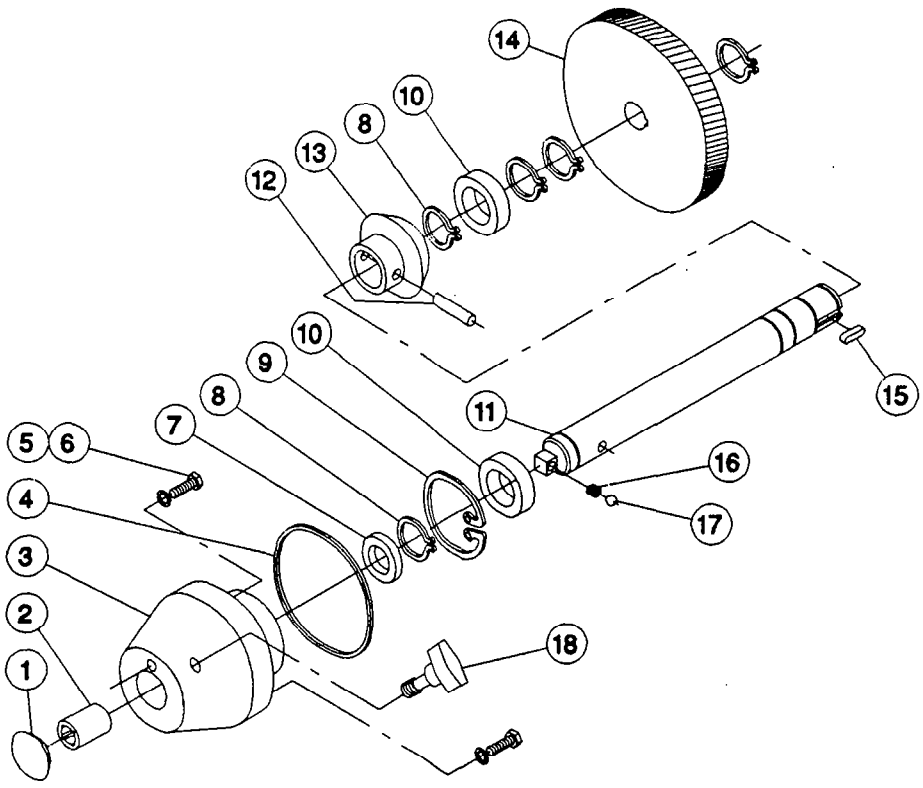
BEATER HEAD AND VERTICAL SHAFT ASSEMBLY
FIGURE 5

ILLUS. NO.	PART NO.	DESCRIPTION.	QTY.
1	1064423	HOUSING, BEATER HEAD	1
2	1064424	SHAFT, BEATER HEAD	1
3	1200310	PIN, DOWEL	1
4	1061959	BEARING, BALL	1
5	1064426	SPACER, BEATER HEAD	1
6	1061917	BEARING, BALL	1
7	4400231	KEY 1/4 SQ. X 1, CLASS 1, ROUNDED BOTH ENDS	1
8	1200354	RETAINING RING, INTERNAL	2
9	1200353	RETAINING RING, EXTERNAL	4
10	1064509	SEAL,	1
11	1061003	GEAR, PINION, BEATER HEAD	1
12	1064420	GEAR, BEVEL, VERTICAL SHAFT	1
13	1064422	SHAFT, VERTICAL	1
14	1200314	KEY, 3/8 SQ. X 1-1/2, CLASS 1, ONE END ROUNDED	1
15	1064513	BEARING, BALL, VERTICAL	1
16	1064512	SEAL,	1
17	1064500	BEARING, BALL, VERTICAL	1
18	1200315	KEY, 3/8 SQ. X 2, CLASS 1, ONE END ROUNDED	1
19	1200405	SCREW, SET 5/16-18 X 1-3/4	2
20	1064448	WASHER, 1/2	1
21	1200379	SCREW, HEX HEAD CAP, 1/2-20, SS, L.H.	1



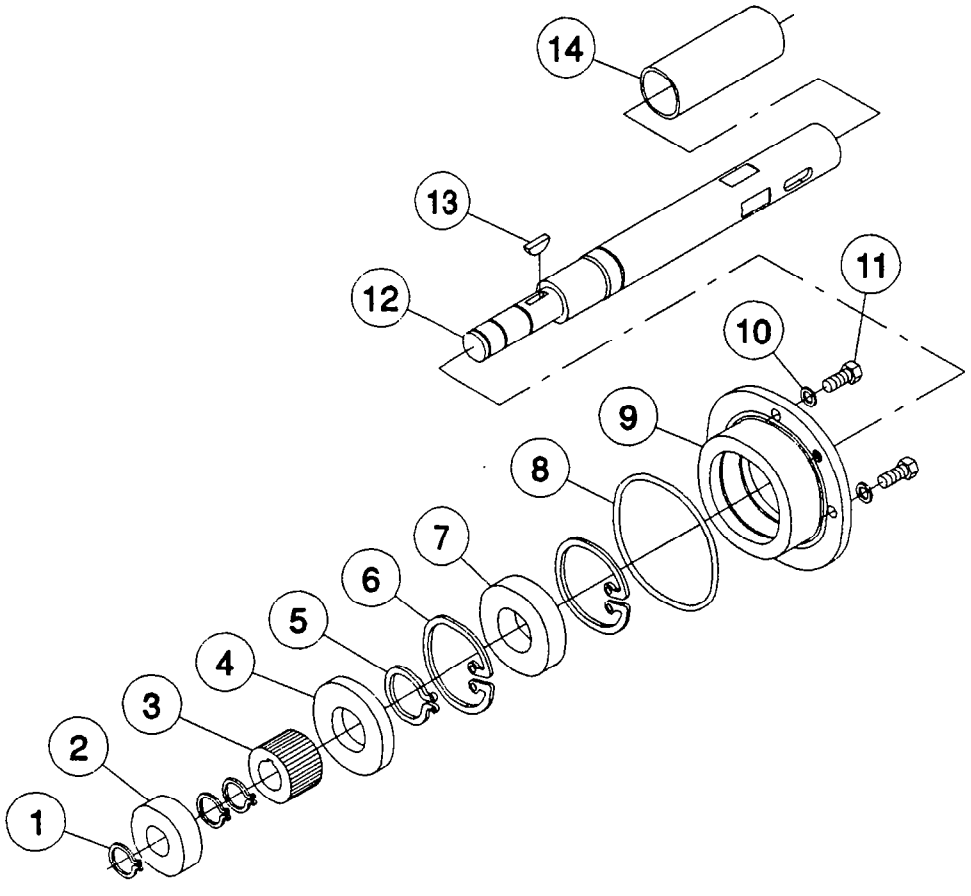
P.T.O. ASSEMBLY
FIGURE 6

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1	8800033	CAP, CHROME, PTO	1
2	8800012	ADAPTOR, PTO	1
3	1061104	HOUSING, PTO	1
4	1064514	O-RING,	1
5	4400220	SCREW, HX HD CAP, 5/16-18 X 1	3
6	1200077	WASHER, LOCK, 5/16	3
7	1064510	SEAL, OIL, PTO,	1
8	1200253	RETAINING RING, EXT.	5
9	1200254	RETAINING RING, INT.	1
10	1030148	BEARING, BALL,	2
11	1064429	SHAFT, PTO	1
12	1200303	PIN, ROLL, 3/8 X 1-3/4	1
13	1061031	GEAR, BEVEL, PTO	1
14	1064428	GEAR, HELICAL, PTO	1
15	4400231	KEY, 1/4 SQ. X 1, CLASS 1, ROUNDED ENDS	1
16	4400006	SPRING, 1/4 O.D., COMPRESSION	1
17	4400016	BALL, STEEL, 1/4 DIA.	1
18	4400229	KNOB ASSEMBLY, PTO	1



INPUT ASSEMBLY
FIGURE 7

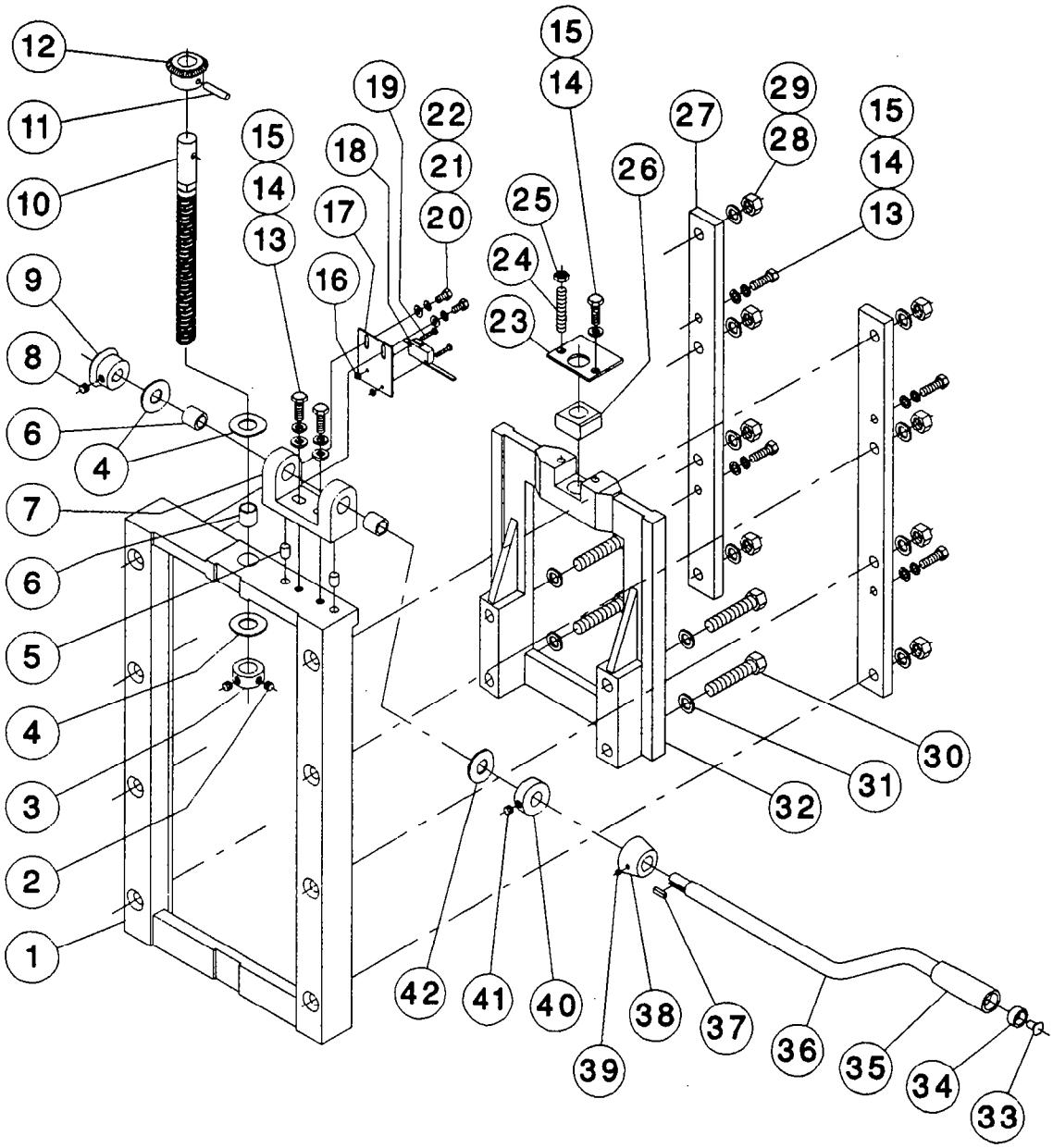
ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1	1200119	RETAINING RING, EXTERNAL	3
2	1030019	BEARING, INPUT, MIDDLE WALL	1
3	1064432	GEAR, HELICAL PINION	1
4	1064511	SEAL, INPUT	1
5	1200316	RETAINING RING, EXTERNAL	1
6	1061909	RETAINING RING, INTERNAL	2
7	1064501	BEARING, INPUT HOUSING	1
8	1064515	O-RING, INPUT HOUSING	1
9	1064430	HOUSING, INPUT	1
10	1200077	WASHER, LOCK, 5/16	4
11	1200039	SCREW, HX HD CAP, 5/16-18 X 3/4, ZINC PLATED	4
12	1064431	SHAFT, INPUT	1
13	1200113	KEY, WOODRUFF, #606	1
14	1064433	SLEEVE, INPUT SHAFT	1



BOWL LIFT ASSEMBLY
FIGURE 8

ILLUS. NO.	PART NO.	DESCRIPTION.	QTY.
1	1062190	FRAME	1
2	4400407	SCREW, SET, 5/16-18 X 1/4 LG.	2
3	1062193	COLLAR, LEAD SCREW	1
4	1061821	WASHER, THRUST	3
5	1200403	PIN, DOWEL, 3/8 DIA. X 1/2 LG.	2
6	1061820	BEARING	3
7	1064452	YOKE	1
8	1200036	SCREW, SET, 5/16-24 X 3/8 LG.	1
9	1062217	GEAR, MITER, HANDLE SHAFT	1
10	1064442	SHAFT, LEAD SCREW	1
11	4400004	PIN, ROLL, 1/4 DIA. X 1-1/8 LG.	1
12	1062970	GEAR, MITER, LEAD SCREW	1
13	1200078	WASHER, 5/16	6
14	1200077	WASHER, LOCK, 5/16	7
15	4400220	SCREW, HEX HD CAP 5/16-18 X 1	7
16	1200433	NUT, ELASTIC STOP, 4-40	2
17	1064411	BRACKET, BOWL LIFT SWITCH	1
18	7100022	SWITCH, BOWL LIFT	1
19	1200432	SCREW, HEX HD 4-40 X 3/4	2
20	1200076	WASHER, #10	2
21	4400065	WASHER, LOCK, #10	2
22	1200012	SCREW, PHILLIPS PAN HD., 10-32 X 1/2	2
23	1062187	PLATE, RETAINER	1
24	1200431	SCREW, SET, 5/16-18 X 2	1
25	1200063	NUT, KEP, 5/16-18	1
26	1064444	NUT, FLOATING	1
27	1062191	GIBB	2
28	1200083	WASHER, 3/8	8
29	1200388	NUT, ELASTIC STOP, 3/8-16	8
30	1200402	SCREW, HEX HD CAP 1/2-20 X 2-3/4	4
31	1200085	WASHER, LOCK, 1/2	4
32	1062189	SLIDE	1
33	1200325	SCREW, FLAT HD SOCKET CAP, 1/4-20 X 3/4, S.S.	1
34	1064416	CAP, B.L. HANDLE	1
35	1064516	HANDLE	1
36	1064441	LEVER, B.L.	1
37	4400232	KEY, 3/16 SQ. X 1 LG., CLASS ONE, ROUNDED ENDS	1
38	1064450	HUB, B.L.	1
39	4400154	SCREW, SET, #10-32 X 1/4	1
40	1064517	COLLAR, B.L.	1
41	4400407	SCREW, SET, 5/16-18 X 1/4 CUP POINT	1
42	1000517	WASHER, BRONZE, 3/4 I.D. X 1-1/8 O.D. X 1/8	1

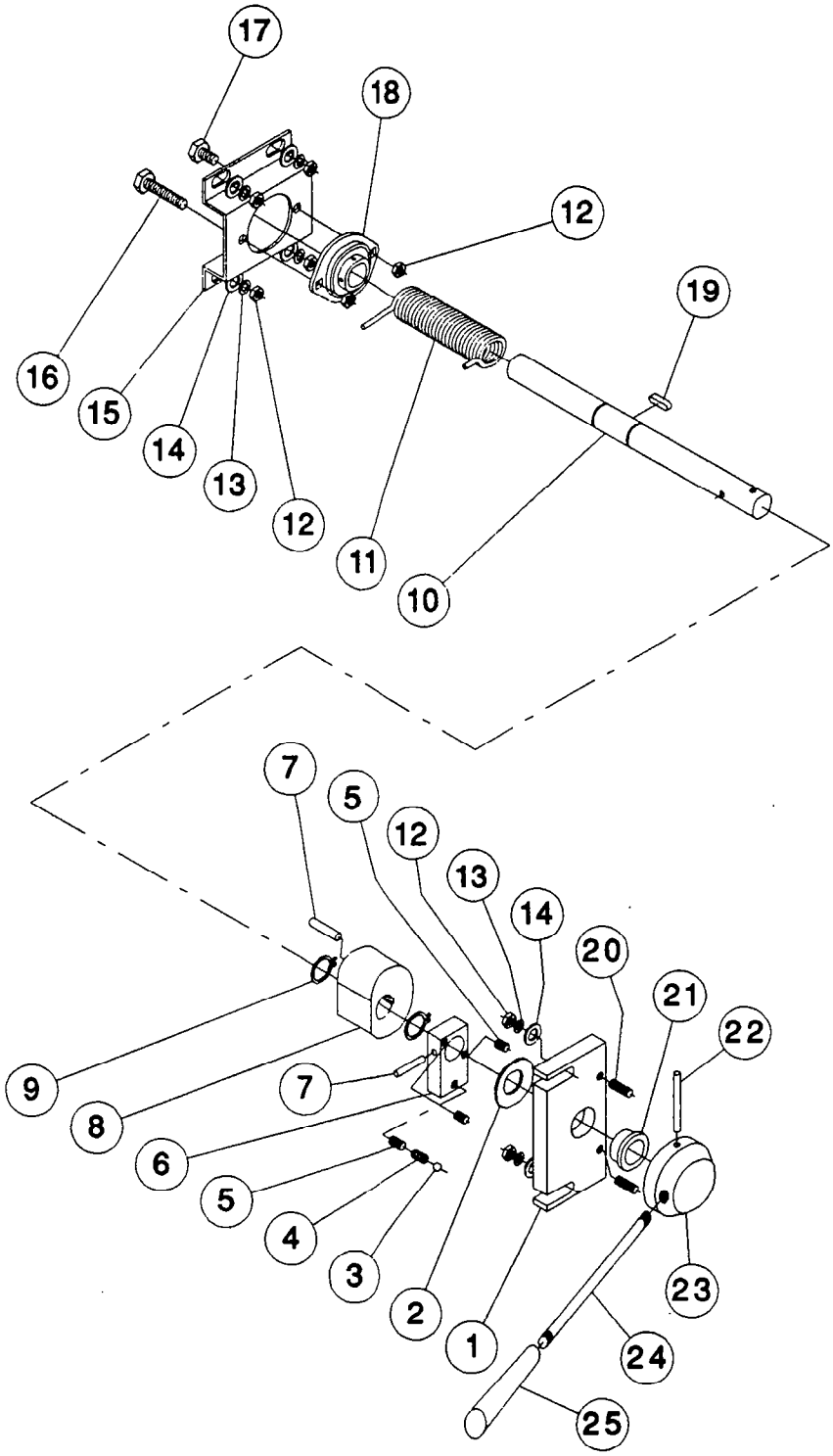
BOWL LIFT ASSEMBLY
FIGURE 8



SPEED CONTROL ASSEMBLY
FIGURE 9

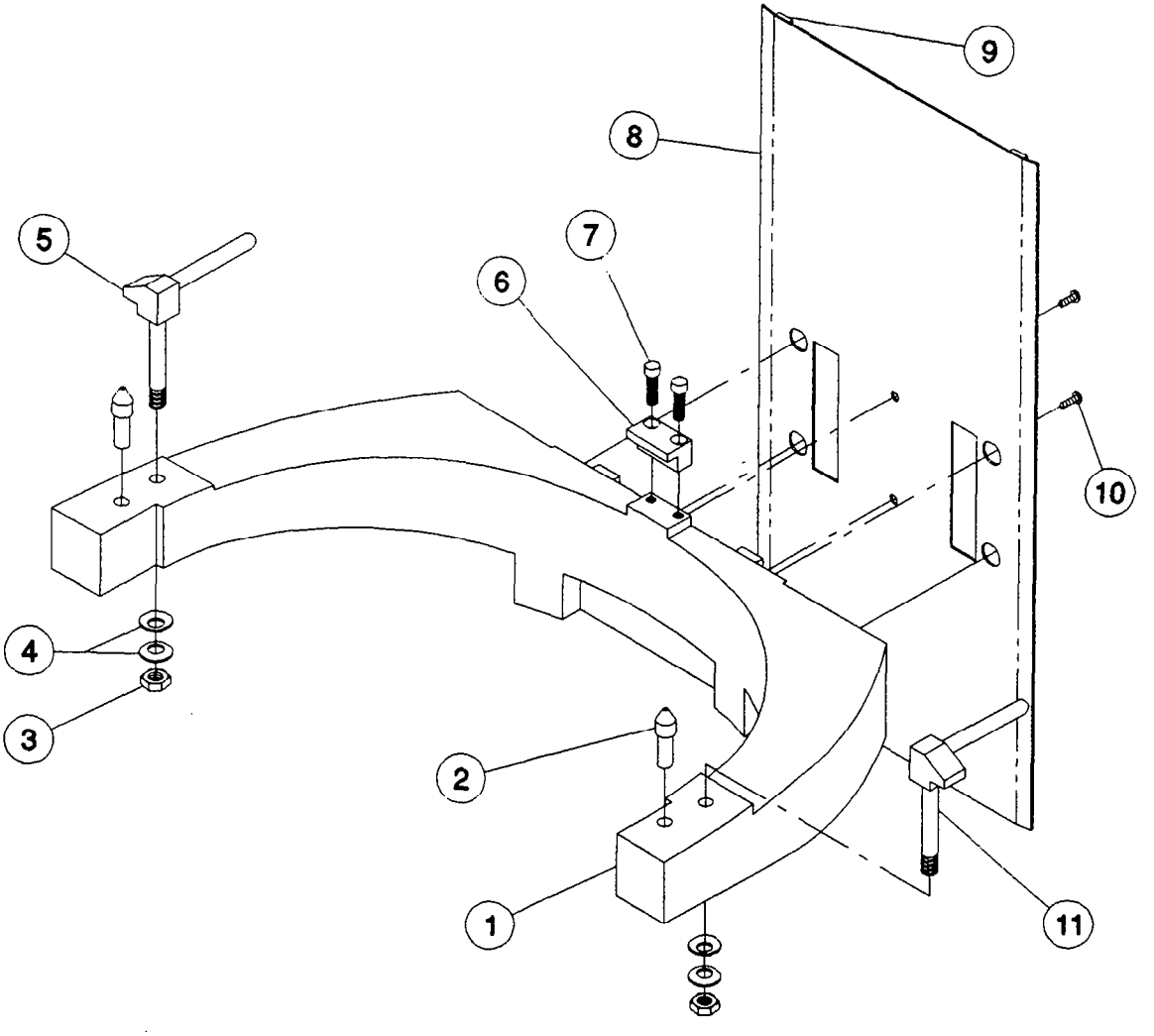
ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1	1064436	HOUSING, DETENT	1
2	1200324	WASHER, BELLEVILLE	1
3	4400016	BALL, STEEL, 1/4" DIA.	1
4	4400006	SPRING, 1/4" O.D.	1
5	1200036	SCREW, SET, 5/16-24 X 3/8	3
6	1064437	BLOCK, S.C. LOCATING	1
7	1200321	PIN, ROLL, 1/4 DIA. X 1-1/2, PLAIN FINISH	2
8	1064438	CAM, S.C.	1
9	1200317	RETAINING RING	2
10	1064434	SHAFT, S.C. CAM	1
11	1064439	SPRING, TORSION	1
12	1200063	NUT, KEP	8
13	1200078	WASHER, 5/16	6
14	1200083	WASHER, 5/16 LG. O.D.	6
15	1064440	BRACKET, S.C. BEARING HOLDER	1
16	1200327	SCREW, HEX HD 5/16-18 X 2, FULLY THREADED	1
17	1200039	SCREW, HEX HD 5/16-18 X 3/4	2
18	1064508	BEARING, FLANGE	1
19	4400231	KEY, ROUND END, 1/4" SQ. X 1	1
20	1200319	SCREW, SOCKET HD SET, 5/16-18 X 1	2
21	1064502	BEARING, BRONZE FLANGE	1
22	1200361	PIN, ROLL, 1/4 DIA. X 3	1
23	1064435	HUB, S.C.	1
24	1020048	LEVER, S.C.	1
25	4400202	KNOB, S.C.	1

SPEED CONTROL ASSEMBLY
FIGURE 9



BOWL SUPPORT ASSEMBLY
FIGURE 10

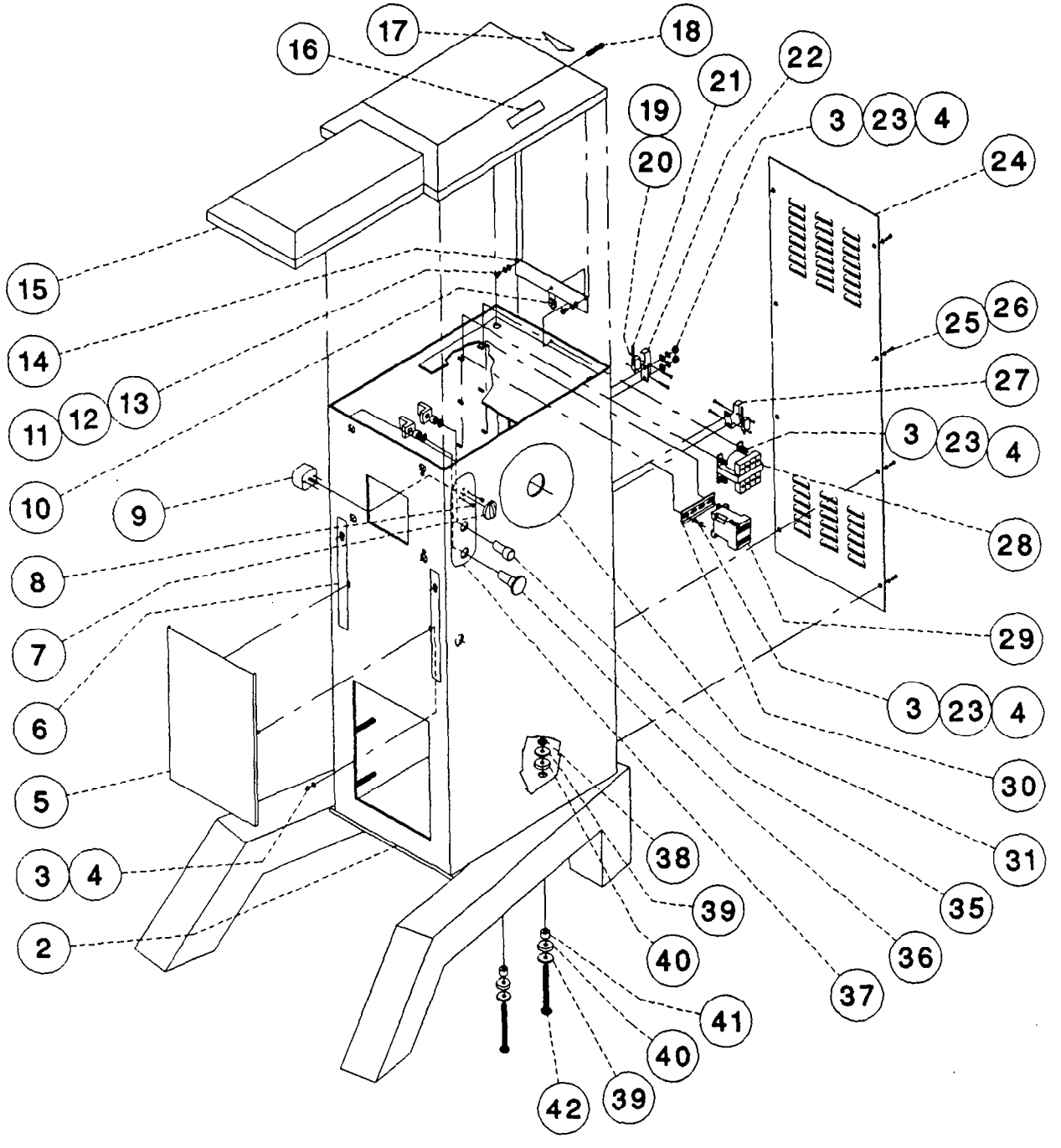
ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1	1061028	SUPPORT, BOWL	1
2	4400219	PINS, BOWL SUPPORT	2
3	1200368	NUT, SPLIT LOCK, 3/8-24	2
4	1200091	WASHER, BELLEVILLE	4
5	1061941	CLAMP, BOWL, LEFT ASSY.	1
6	1061945	CLAMP, BOWL, REAR	1
7	1200356	SCREW, SOCKET HD CAP, 1/4-20 X 1	2
8	1064445	COVER, SLIDE, MOVEABLE	1
9	1020040	STRIP, RUBBER, 21"	2
10	1200008	SCREW, PHILLIPS PAN HD. #8-32 X 3/8"	2
11	1061942	CLAMP, BOWL, RIGHT ASSY.	1



HOUSING ASSEMBLY
FIGURE 11

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1		RESERVED	
2	1064449	HOUSING, MIXER	1
3	1200060	NUT, HEX 10-32	8
		WITH TRANSFORMER CONTROL	12
4	1200076	WASHER, FLAT #10	8
		WITH TRANSFORMER CONTROL	12
5	1064414	COVER, FIXED SLIDE	1
6	4400320	LABEL, KEEP WATER OUT	2
7	7100028	KNOB, TIMER	1
8	1200318	SCREW, M4 X .7MM, CHZ. HD X 8MM LONG	2
9	7100027	TIMER	1
10	4400001	NUT, TINNERMAN	1
11	1200008	SCREW, PHILLIPS PAN HD. #8-32 X 3/8	2
12	4400183	WASHER, LOCK, #8	2
13	1200092	WASHER, FLAT, #8	2
14	1024042	SPRING, TOP COVER	1
15	1064412	COVER, TOP	1
16	4400113	LABEL, STOP, UNPLUG	1
17	4400114	LABEL, COVER REMOVAL	1
18	1200422	SCREW, SHEET METAL, TOP COVER	1
19	1200433	NUT, ELASTIC STOP #4-40	4
20	1200432	SCREW, HX. HD. #4-40 X 3/4	4
21	7100022	SWITCH, GUARD	2
22	1024415	BRACKET, GUARD SWITCH, L.H.	1
23	4400065	WASHER, LOCK, #10	6
		WITH TRANSFORMER	10
24	1064419	PANEL, REAR	1
25	4400208	SCREW, PHILLIPS HD. 1/4-20 X 1/2	8
26	1200075	WASHER, 1/4 I.D.	8
27	1024414	BRACKET, GUARD SWITCH, RIGHT	1
28	1033326	TRANSFORMER, 440V	1
29	7100005	STARTER, 240V, 50HZ, 3PH	1
	7100006	STARTER, 208-240V, 3PH	1
	7100007	STARTER, 380-460V, 3PH	1
	7100008	STARTER, 240V, 50HZ, 1PH	1
	7100009	STARTER, 208-240V, 1PH	1
30	7100010	BRACKET, DIN RAIL	1
31	4400316	LABEL, SPEED CONTROL	1
32		RESERVED	
33		RESERVED	
34		RESERVED	
35	7100021	SWITCH, PUSH BUTTON, START	1
36	7100020	SWITCH, PUSH BUTTON, STOP	1
37	4400311	LABEL, START/STOP/TIMER	1
38	1200063	NUT, KEP 5/16-18	4
39	1200320	WASHER	8
40	1064447	MOUNT, MOTOR	8
41	1064446	ISOLATOR, MOTOR	4
42	1200323	BOLT, MOTOR MOUNT 5/16-18 X 4-1/2	4

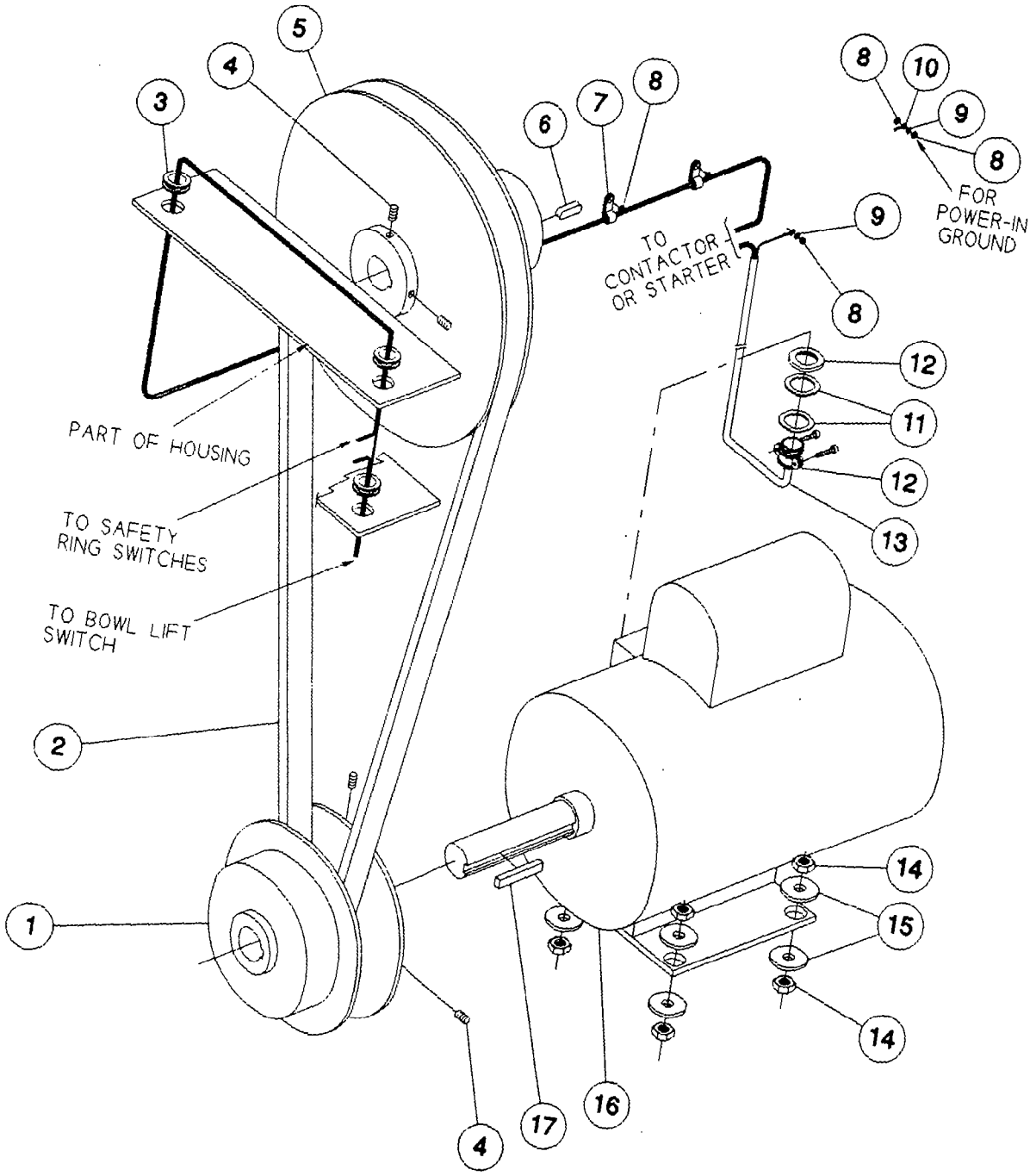
HOUSING ASSEMBLY
FIGURE 11



DRIVE ASSEMBLY
FIGURE 12

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.
1	1064504	PULLEY, VARIABLE, MOTOR	1
2	1064505	BELT, VARIABLE,	1
3	4400214	BUSHING, HEYCO	3
4	4400072	SCREW, SET 5/16-18X3/8, KNURLED CUP POINT	4
5	1064503	PULLEY, VARIABLE, INPUT	1
6	4400231	KEY, 1/4 SQ. X 1	1
7	4400101	CLAMP, CORD	2
8	1200060	NUT, HEX #10-32	5
9	4400065	WASHER, LOCK #10	2
10	1061967	RING, TERMINAL, #10, 12 GAUGE	1
11	4400402	WASHER, CABLE CONNECTOR	2
12	4400401	CONNECTOR, CABLE, 3/8	1
13	8800206	CORD, MOTOR, 1 PHASE	1
	8800207	CORD, MOTOR, 3 PHASE	1
14	1200063	NUT, KEP 5/16-18	8
15	1200078	WASHER, 5/16	8
16	1064520	MOTOR, 208-240V, 60HZ, 1 PH	1
	1064521	MOTOR, 220-240V, 50HZ, 1 PH	1
	1064522	MOTOR, 208-240/460V, 60HZ, 3 PH	1
	1064523	MOTOR, 220/380/440V, 50HZ, 3 PH	1
17	4400235	KEY, 1/4 SQ. X 2	1

DRIVE ASSEMBLY
FIGURE 12



SRM60+ ELECTRICAL CONNECTIONS

Electrical connections should be made my qualified workmen who will observe all applicable safety codes and the National Electrical Code.

Before making electrical connections, check the specifications on the data plate (located on the rear access panel) to assure they agree with those of your electrical service.

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AT THE MAIN CIRCUIT BOX AND PLACE A TAG INDICATING THE CIRCUIT IS BEING WORKED ON.

A hole of 1/2" conduit is located in the left surface of the housing in the rear uppermost location. Connect the input power leads to the pigtail leads for the motor controller. A solderless lug is provided for the service ground lead. Secure service ground to the grounding stud located to the left of the conduit hole.

Three-phase machines must be connected so the beater head (planetary) turns in the direction of the arrow (left to right). To check the direction of rotation, turn the power disconnect switch "ON". Place timer on "HOLD". Energize machine momentarily by pushing "START" then "STOP" and verify the direction of rotation.

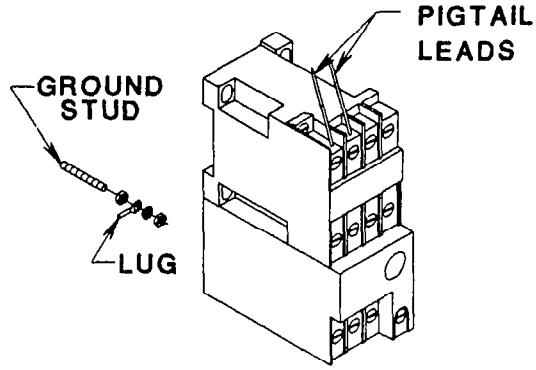
WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AT THE FUSED DISCONNECT SWITCH AND PLACE A TAG INDICATING THE CIRCUIT IS BEING WORKED ON.

If motor rotation is incorrect, interchange any two of the power supply leads.

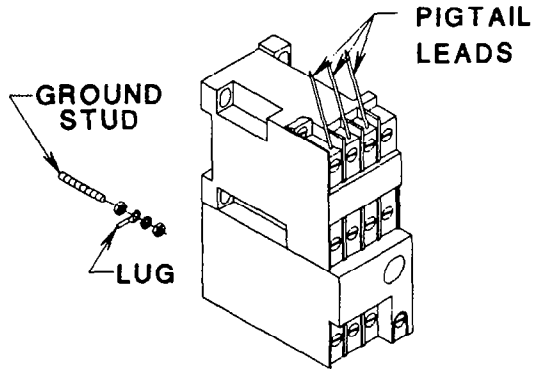
NOTE: It is not necessary to remove the top cover of the mixer in order to perform the electrical installation. Only the rear access panel (Fig.11 [24]) need be removed.

ELECTRICAL CONNECTIONS

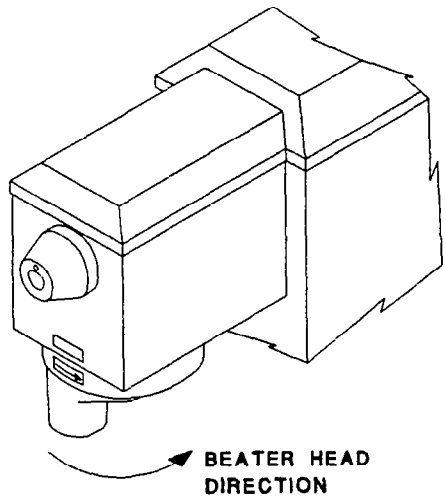
SINGLE PHASE



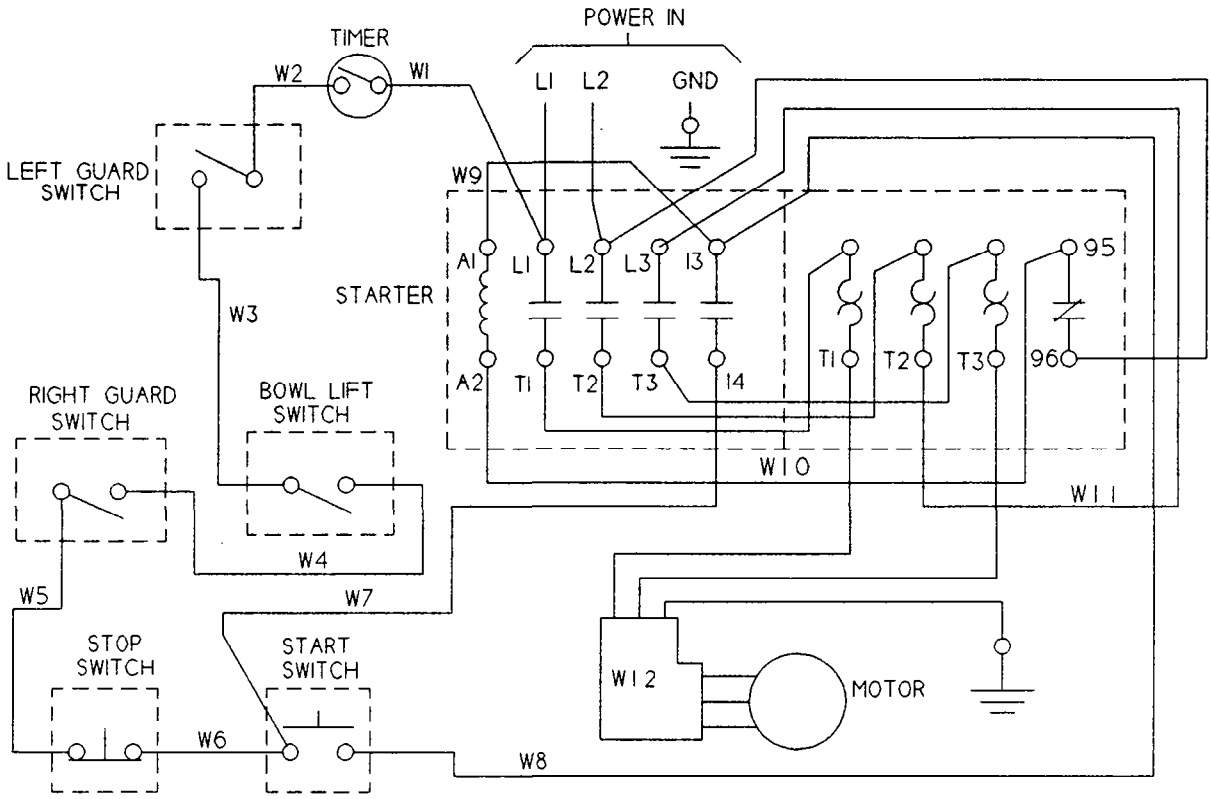
THREE PHASE



MIXER ROTATION



WIRING DIAGRAM
(208-240V, 60HZ, 1PH)
Figure 13A



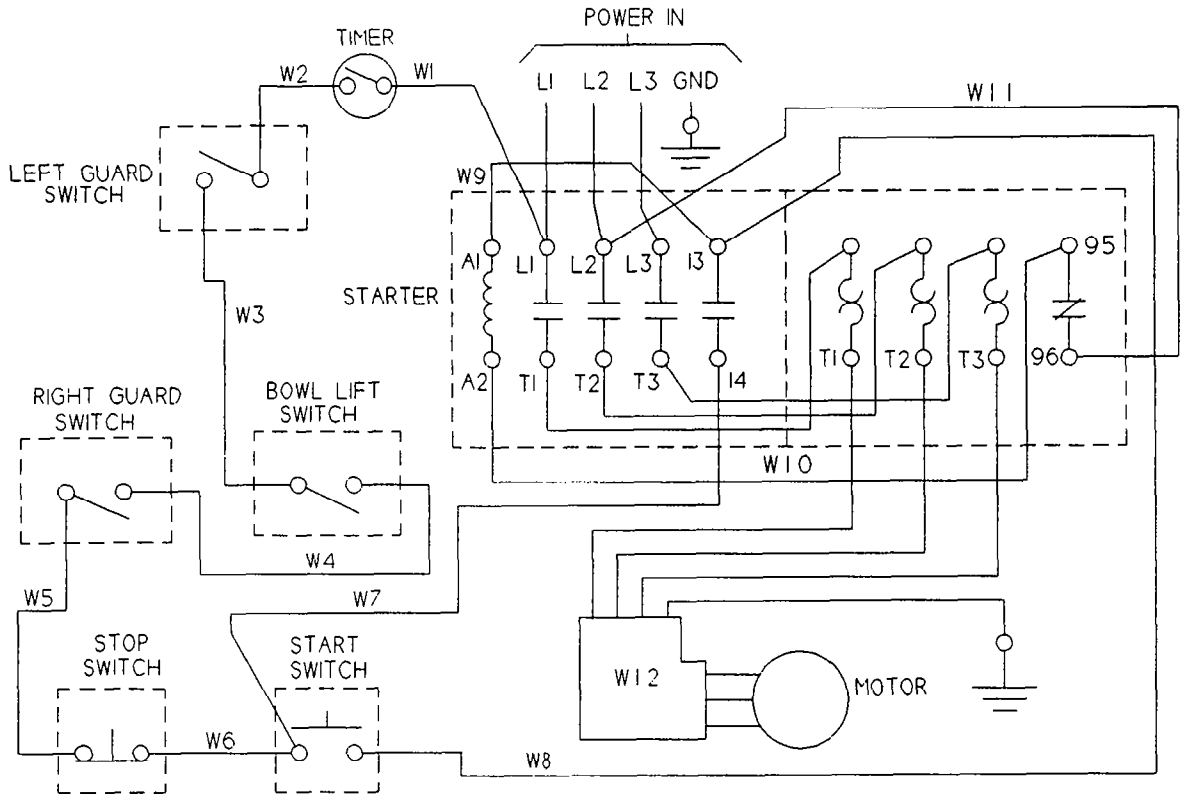
WIRE TABLE							
PART NUMBER	WIRE NO.	GA	SEE NOTE	LENGTH IN INCHES	END A SEE NOTE	END B SEE NOTE	COLOR
8800223	W1	16	3	39	1	2	WHITE
	W2	16	3	22	2	2	WHITE
	W3	16	3	8	2	2	BLACK
	W4	16	3	19	2	2	BLACK
	W5	16	3	8	1	2	RED
	W6	16	3	2 1/2	1	1	RED
	W7	16	3	45	1	1	BLACK
	W8	16	3	42	1	1	RED
PART OF STARTER	W9						
	W10						
	W11						
	W12	CORD					

NOTES: 1. STRIP 3/8" TWIST AND TIN.
2. STRIP AND SOLDER 1/4" FEMALE QUICK DISCONNECT (FULLY INSULATED).
3. MATERIAL: 16GA 1015 TEW CSA AND UL APPROVED.

IMPORTANT: Before making electrical connections, check the specifications on the data plate (located on the rear access panel) to assure they agree with those of your electrical service.

WARNING: Whenever maintenance is being performed, or whenever the top cover or rear access panel have been removed, DISCONNECT electrical cord and place a tag on it indicating the mixer is being worked on.

WIRING DIAGRAM
(208-240V, 60HZ, 3PH)
Figure 13B



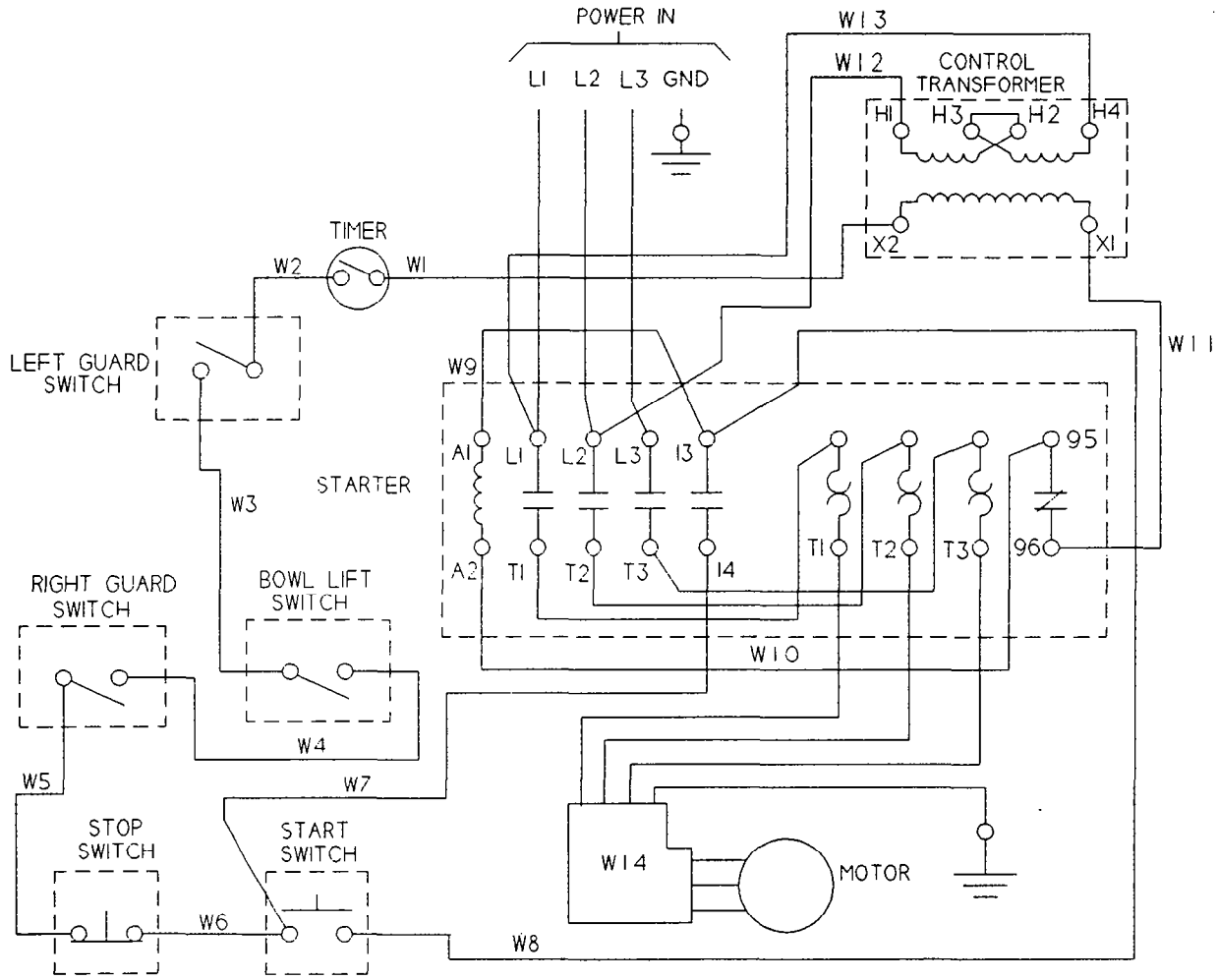
WIRE TABLE							
PART NUMBER	WIRE NO.	GA	SEE NOTE	LENGTH IN INCHES	END A SEE NOTE	END B SEE NOTE	COLOR
8800223	W1	16	3	39	1	2	WHITE
	W2	16	3	22	2	2	WHITE
	W3	16	3	8	2	2	BLACK
	W4	16	3	19	2	2	BLACK
	W5	16	3	8	1	2	RED
	W6	16	3	2 1/2	1	1	RED
	W7	16	3	45	1	1	BLACK
	W8	16	3	42	1	1	RED
PART OF STARTER	W9						
	W10						
	W11						
	W12	CORD					

NOTES: 1. STRIP 3/8" TWIST AND TIN.
2. STRIP AND SOLDER 1/4" FEMALE QUICK DISCONNECT (FULLY INSULATED).
3. MATERIAL: 16GA 1015 TEW CSA AND UL APPROVED.

IMPORTANT: Before making electrical connections, check the specifications on the data plate (located on the rear access panel) to assure they agree with those of your electrical service.

WARNING: Whenever maintenance is being performed, or whenever the top cover of rear access panel have been removed, DISCONNECT electrical cord and place a tag on it indicating the mixer is being worked on.

WIRING DIAGRAM
(460V, 60HZ, 3PH) (380V, 50HZ, 3PH)
Figure 13C



IMPORTANT: Before making electrical connections, check the specifications on the data plate (located on the rear access panel) to assure they agree with those of your electrical service.

WARNING: Whenever maintenance is being performed, or whenever the top cover or rear access panel have been removed, DISCONNECT electrical cord and place a tag on it indicating the mixer is being worked on.

WIRING DIAGRAM
(460V, 60HZ, 3PH) (380V, 50HZ, 3PH)
Figure 13C (cont.)

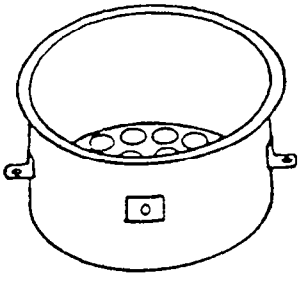
WIRE TABLE							
PART NUMBER	WIRE NO.	GA	SEE NOTE	LENGTH IN INCHES	END A SEE NOTE	END B SEE NOTE	COLOR
8800223	W1	16	3	39	1	2	WHITE
	W2	16	3	22	2	2	WHITE
	W3	16	3	8	2	2	BLACK
	W4	16	3	19	2	2	BLACK
	W5	16	3	8	1	2	RED
	W6	16	3	2 1/2	1	1	RED
	W7	16	3	45	1	1	BLACK
	W8	16	3	42	1	1	RED
PART OF 1033328	W9	16	3	2 1/2	1	1	RED
	W10	16	3	5 1/2	1	1	RED
	W11	16	3	8 1/2	1	1	RED
	W12	16	3	11	1	1	BLACK
	W13	16	3		1	1	WHITE
	W14	CORD					

NOTES: 1. STRIP 3/8" TWIST AND TIN.
2. STRIP AND SOLDER 1/4" FEMALE QUICK DISCONNECT (FULLY INSULATED).
3. MATERIAL. 16GA 1015 TEW CSA AND UL APPROVED.

IMPORTANT: Before making electrical connections, check the specifications on the data plate (located on the rear access panel) to assure they agree with those of your electrical service.

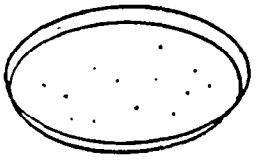
WARNING: Whenever maintenance is being performed, or whenever the top cover or rear access panel have been removed, DISCONNECT electrical cord and place a tag on it indicating the mixer is being worked on.

COLANDER SET (OPTIONAL)
Figure 15



1 Colander
1061234

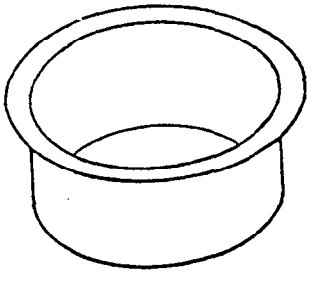
SIEVES



3 Fine 1030335

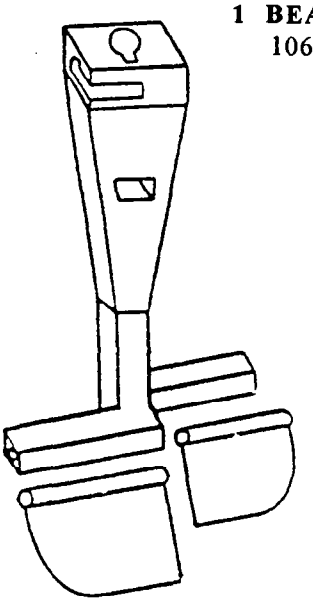
4 Medium 1030336

5 Coarse 1030337



2 DRIP BOWL
1061338

BEATER-WIPER ASSEMBLY
Figure 16

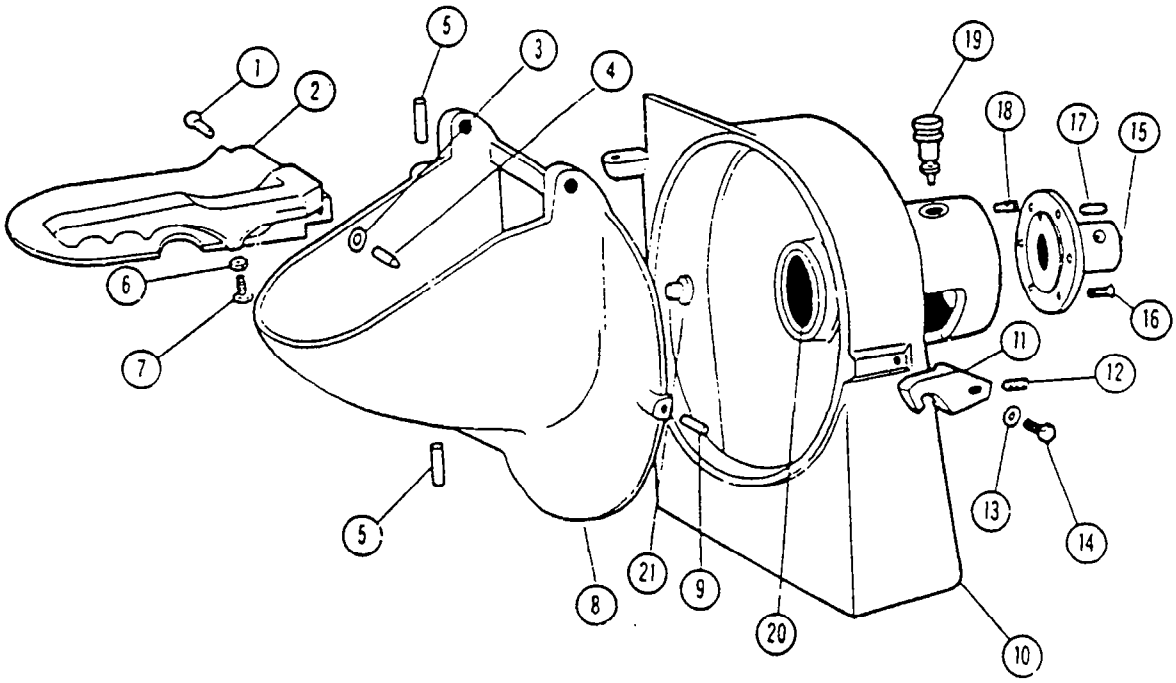


1 BEATER WIPER
1061208

2 WIPER
1033201

VEGETABLE SLICER AND PLATE HOUSING ASSEMBLY
(OPTIONAL)
Figure 17

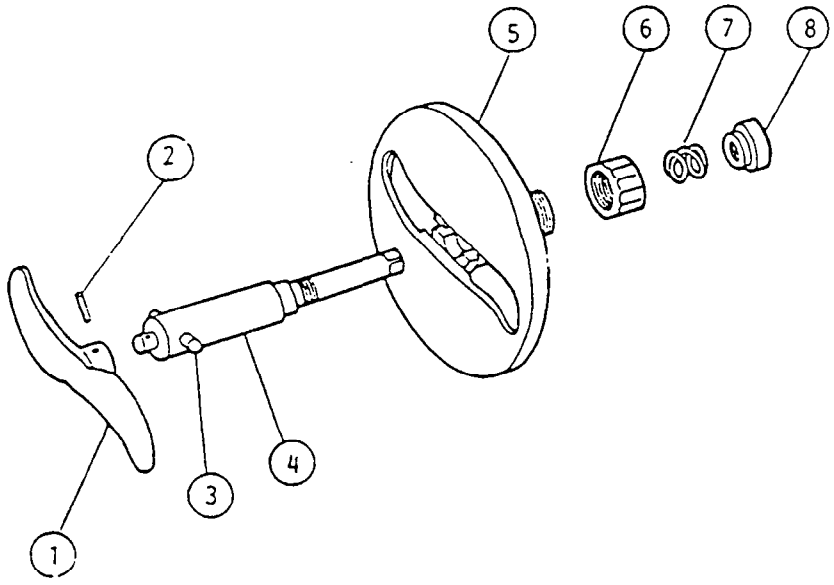
ILLUS. NO.	PART NO.	DESCRIPTION	QTY
1	4400028	Pin, Left Pusher	1
2	1000903	Plate, Feed	1
3	4400097	Washer, Nylon 1/2 O.D. x 3/8 I.D.	1
4	4400029	Pin, Right Pusher	1
5	0090004	Pin, Hinge	2
6	4400057	Nut, Stop 1/4 - 20	1
7	1200025H	Set screw 1/4 - 20 x 3/4	1
8	1000902	Housing, Front	1
9	4400400	Pin, Dowel 1/4 x 1" SS	1
10	1000901	Housing, Rear	1
11	1000806	Latch	1
12	8900031	Set Screw 10 - 32 x 3/8	1
13	1200377	Washer, Bevel 5/16	1
14	0090000	Screw, Latch	1
15	1000918	Hub, no. 12 Tapered	1
16	4400091	Screw Pan HD 1/4 - 20 x 5/8	1
17	0090002	Pin Locating 5/16 x 1	1
18	4400184	Set Screw, Full Dog 5/16 - 24 x 1/2	1
19	1000811	Pin, Shaft Lock	1
20	1000914	Bushing, Bronze	1
21	1000923	Button, Plastic	1



SLICER, PLATE ASSEMBLY
Figure 18

ILLUS. NO.	PART NO.	DESCRIPTION	QTY
1 *	1000922	Knife	1
2 *	4400004	Pin, Roll 1/4 x 1 1/8	1
3 *	4400092	Pin, Drive	1
4 *	1000820	Shaft, Drive	1
5 *	1000904	Plate, Adjusting	1
6	1000808	Nut, Adjusting	1
7	1000917	Spring, Nut Adjusting	1
8	1000809	Bearing, Thrust	1

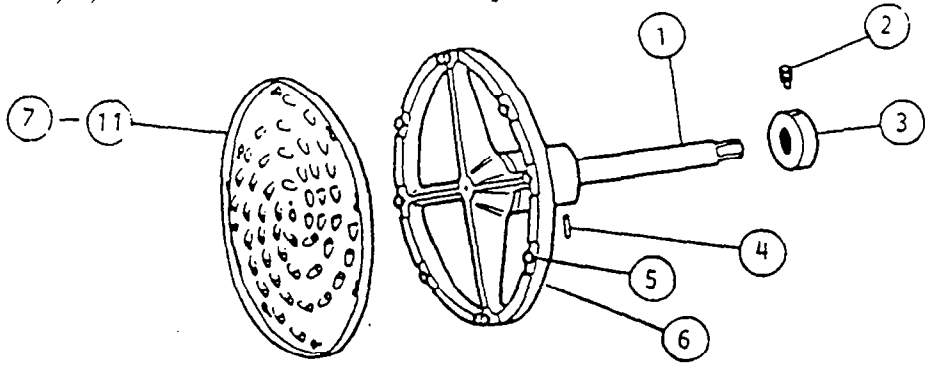
Illus. no. 1 - 5 are for illustration. Replaced as an assembly only, NO. 1000912.



SHREDDER PLATE ASSEMBLY
Figure 19

ILLUS. NO.	PART NO.	DESCRIPTION		QTY
1 *	1000116	Shaft		
2	1200036	Set Screw 5/16 - 24 x 3/8		1
3	1000937	Bearing, Thrust		1
4 *	4400116	Pin, Roll 3.16 x 1 1/2		1
5 *	1000975	Pin, Plate		2
6 *	1000115	Holder, Plate		1
7	1000906	Plate, Grater	OPTIONAL	
8	1000907	Plate, Shredder 3/32	OPTIONAL	
9	1000908	Plate, Shredder 1/2	OPTIONAL	
10	1000909	Plate, Shredder 3/16	OPTIONAL	
11	1000910	Plate, Shredder 5/16	OPTIONAL	

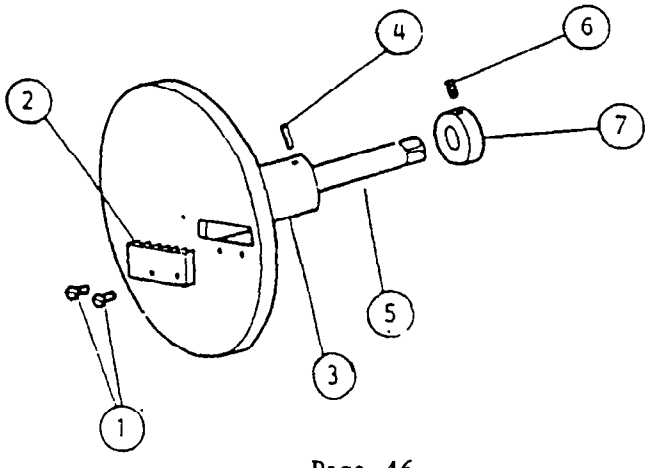
* Illus. NO. 1, 4, 5 and 6 are for illustration. Replaced as an assembly only, NO. 1000913.



JULIENNE CUTTER ASSEMBLY
Figure 20

ILLUS. NO.	PART NO.	DESCRIPTION	QTY
1	200203	Screw, Flat HD SS 10 - 32 x 3/8	2
2	1023232	Cutter	1
3	1023233	Plate	1
4	4400116	Pin, Roll 3/16 x 1 1/2	1
5	1000116	Shaft	1
6	1200036	Set Screw 5/16 - 24 x 3/8	1
7	1000973	Bearing, Thrust	1

* Illus. NO> 3 - 5 are for illustration. Replaced as an assembly only.



UNIVEX/VENDOR PART NUMBER CROSS REFERENCE

UNIVEX NO.	DESCRIPTION	VENDOR CODE (SEE PAGE 49 & 50)	VENDOR NO.
1030019	BALL BEARING	U	6204 LLU
1030148	BALL BEARING	U	6205 LLU
1033326	TRANSFORMER 440V	S	V050PU 7JK
1061820	BEARING	L	12DU12
1061909	RETAINING RING	AA	N5002-244
1061917	BALL BEARING	U	6207 ZZ
1061959	BALL BEARING	U	6207 LLU
1061990	PLUG OIL	E	T 22 S
1064500	BALL BEARING	T	5209-CFF
1064501	BEARING HOUSING	U	6206 LLU
1064502	BEARING	D	FB1620-6
1064503	PULLEY	Z	1064503
1064504	PULLEY	Z	1064504
1064505	BELT	I	1922V806
1064507	PLUG, OILING TUB	E	WW-7X
1064508	BEARING, FLANGE	Q	FPS2-25-1
1064509	SEAL	A	DIN3760TYPE A 35X72X10
1064510	SEAL	A	DIN3760 TYPE A 25X42X8
1064511	SEAL	A	DIN 3760 TYPE A 30X62X7
1064512	SEAL	A	DIN 3760 TYPE A 50X85X8
1064513	BALL BEARING	T	5207-CZZ
1064514	O-RING	K	AS568-047
1064515	O-RING	K	AS568-043
1064516	HANDLE	P	30891
1064517	COLLAR	R	6166K27
1064520	MOTOR 208-240V, 60HZ, 1PH	C	L1408T
1064521	MOTOR 220-240V, 50HZ, 1PH	C	L1408T-50
1064522	MOTOR 208-240/460V, 60HZ, 3PH	C	M3211T
1064523	MOTOR 220/380/440V, 50HZ, 3PH	C	M3211T-50
1200119	RETAINING RING	AA	N5101-78
1200253	RETAINING RING	AA	5101-98
1200254	RETAINING RING	AA	N5002-281
1200316	RETAINING RING	AA	5101-118
1200317	RETAINING RING	AA	5101-100
1200353	RETAINING RING	AA	5101-137
1200354	RETAINING RING	AA	N5002-281
4400001	FASTENER	Y	C-8818-1024-4
4400006	SPRING	B	C0240-040-0310M
4400016	BALL, STEEL 1/4 DIA.	J	1/4 DIA. STEEL
4400202	HANDLE S.C.	M	698
4400214	BUSHING	N	2840
4400229	PTO KNOB	Z	4400229
4400401	CONNECTOR	V	3/8 ROMAX CONNECTOR
7100005	STARTER 240V, 50HZ, 3PH	W	CAT3-16-277-9.5
7100006	STARTER 208-240V, 60HZ, 3PH, 220V, 50HZ, 3PH	W	CAT3-16-220W-9.5
7100007	STARTER 460V, 60HZ, 3PH 380V/440V, 50HZ, 3PH	W	CAT3-16-24-6.0

IVEX/VENDOR PART NUMBER CROSS REFERENCE (CONT.)

UNIVEX NO.	DESCRIPTION	VENDOR CODE (SEE PAGE 49 & 50)	VENDOR NO.
7100008	STARTER 240V, 50HZ, 1PH	W	CBT3-16-277-17.5
7100009	STARTER 208-240V, 60HZ, 1PH 220V, 50HZ, 1PH	W	CBT3-16-220W-17.5
7100020	PUSH BUTTON, STOP	G	PF2-BN-C01B
7100021	PUSH BUTTON, START	G	PR3-BN-C10B
7100022	SWITCH, GUARD	F	TFCJK6ST164AY
7100027	TIMER, 15 MIN.	O	990-SPST-N.O.-4-0-0-1
7100028	KNOB, TIMER	O	BLACK, TIMER KNOB
8800033	COVER, PTO	X	D3839
8800206	CORD	H	8800206
8800207	CORD	H	8800207

VENDOR LIST

A Action Bearing
201 Brighton AVE
Boston MA 02134

B Associated Spring Corp
18 Main Street
Bristol, CT 06010

C Baldor
Fort Smith, AR 72902

D Boston Gear
14 Hayward Street
Quincy, MA 02171

E Caplug
2150 Elmwood Ave
Buffalo, NY 14207

F C & K Component Inc.
2035 Highway 70 East
Clayton, NC 27520-9058

G Controls Plus Inc.
104 Longwater Drive Unit 3
Assinippi Park
Norwell, MA 02061

H Cord Specialities
10632 W. Grand AVE
Franklin Park, IL 60131

I Dayco Corporation
333 West First Street
Dayco, OH 45402

J Eastern Bearing
7096 South Willow Street
Manchester. NH

K Federal Mogul
26555 North Western Highway
Southfield, MI 48034

L Garlock Bearing Inc.
698 Mid Atlantic Parkway
Thorofare, NJ 08086

M Harry Davies Molding Co.
4920 W. Bloomingdale Ave
Chicago, IL 60639

N Heyco Molded Products
Box 160
Kenilworth, NJ 07033

O I.F.G. Instruments Inc.
190 James Street
Barrington, IL 60010

P Kipp-Elesa
Suite 241
1100 north woodward
Birmingham, MI 48009

Q McGill
Valparaiso, IN 46383

R McMaster Carr
P.O. Box 440
New Brunswick, NJ 08903-0440

S Micron Industries Corp.
1830 North 32nd Ave.
Stone Park, IL 60165

T MRC
402 Chandler Street
Jamestown, NY 14701

U NTN
1099 Wall Street
West Lyndhurst, NJ 07071

V Ralph Pill Electrican Supply
307 Dorchester AVE
Boston, MA 02127-2472

W Sprecher-Schuh
P.O. Box 1671
108 Midland Ave
Port Chester, NY 10573

X Stimpson Inc.
900 Sylvan Ave.
Bayport, NY 11705

VENDOR LIST (CONT.)

Y Tinnerman
P.O. Box 6688
Cleveland, OH 44101

Z Univex
3 Old Rockingham Road
Salem NH, 03079

AA Waldes Kohinoor Truarc Inc
47-16 Austel Place
Long Island City, NY 11101

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4. REV. DATE OR TM CH. DATE	5. SYSTEM/EQUIPMENT	6. IDENTIFICATION/NOMENCLATURE (MK/MOD/AN)

7. USER'S EVALUATION OF MANUAL *(Check Appropriate blocks)*

	A. EXCEL-LENT		B. GOOD		C. FAIR		D. POOR		E. COM-PLETE		F. INCOM-PLETE

8. GENERAL COMMENTS

9. RECOMMENDED CHANGES TO PUBLICATION

PAGE NO. A.	PARA-GRAPH B.	LINE NO. C.	FIG. NO. D.	TABLE E.	F. RECOMMENDED CHANGES AND REASONS

10. ORIGINATOR AND WORK CENTER (PRINT)	11. ORIGINATOR'S RANK, RATE OR GRADE, AND TITLE	12. DATE SIGNED

13. SIGNATURE OF WORK CENTER HEAD	14. SIGNATURE OF DEPARTMENT OFFICER	15. AUTOVON/COMM. NO.

16. SHIP HULL NO. AND/OR STATION ADDRESS (DO NOT ABBREVIATE)

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